

数学授業プリント 解答

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https://unilab.gbb60166.jp/math_ia/math_ia.htm

間違いを見つけた人は gbb60166@gmail.com までご連絡をお願いします。問題差し替えのため、問題と解答が不一致の可能性あります。解答が未掲載の問題もあるかも知れません。

数学 I 授業プリント # 1

- ① (1) -2 (2) 15 (3) -2 (4) 9 (5) -2 (6) 17
② (1) -8 (2) 16 (3) 30 (4) -54 (5) 9 (6) -9
③ (1) -8 (2) 27 (3) 13 (4) -4 (5) 43 (6) 14 (7) -10 (8) -3 (9) -35 (10) 48 (11) 59 (12) 225
④ (1) 7 (2) -1 (3) 4 (4) 32

数学 I 授業プリント # 2

- ① (1) 15 (2) -4 (3) -10 (4) -9 (5) -3 (6) -17 (7) 90 (8) 5 (9) 16 (10) 7 (11) 10 (12) 1 (13) -13 (14) -6
(15) -16 (16) 19 (17) -3 (18) 24 (19) 90 (20) 12 (21) 6 (22) -3 (23) 43
② (1) 8 (2) 3 (3) 0 (4) -1 (5) 0 (6) 3
③ (1) 1 (2) 3 (3) 1 (4) -5 (5) -15 (6) -29
④ (1) 16 (2) 4 (3) 9 (4) 18 (5) 48 (6) -12 (7) 37 (8) -21 (9) 9 (10) -45

数学 I 授業プリント # 3

- ① (1) 11 (2) 3 (3) 39 (4) -16 (5) 36 (6) 11 (7) -24 (8) -41
② (1) -5 (2) 12 (3) 28 (4) -8 (5) 16 (6) 11 (7) 16 (8) -9
③ (1) -21 (2) -6 (3) 1 (4) 0 (5) -9 (6) -26
④ (1) -11 (2) -5 (3) 127 (4) 21 (5) -135 (6) 61
⑤ (1) 46 (2) 16 (3) 5 (4) 6 (5) 48 (6) -8

数学 I 授業プリント # 4

- ① (1) 9 (2) 10 (3) 21 (4) -2 (5) -8
② (1) -8 (2) 18 (3) -1 (4) 25 (5) -14
③ (1) -16 (2) 38 (3) 31 (4) 62 (5) -27
④ (1) 3 (2) 0 (3) 1 (4) 6 (5) 15 (6) 28
⑤ (1) 77 (2) 55 (3) 37 (4) 23 (5) 13 (6) 7

数学 I 授業プリント # 5

- ① (1) $2\sqrt{2}$ (2) $2\sqrt{3}$ (3) $3\sqrt{5}$ (4) $5\sqrt{3}$ (5) $2\sqrt{6}$ (6) $3\sqrt{15}$ (7) $4\sqrt{2}$ (8) $4\sqrt{3}$
② (1) $\frac{5\sqrt{2}}{2}$ (2) $\frac{4\sqrt{3}}{3}$ (3) $2\sqrt{5}$ (4) $\frac{3\sqrt{6}}{2}$
③ (1) $8\sqrt{5}$ (2) $2\sqrt{3}$ (3) $2\sqrt{3} + 4\sqrt{2}$ (4) $-3\sqrt{3} - 4\sqrt{2}$ (5) $3\sqrt{3}$ (6) $2\sqrt{2}$
④ (1) $\sqrt{15}$ (2) $\sqrt{10} + \sqrt{15}$ (3) $\sqrt{21} - \sqrt{6}$ (4) $2\sqrt{3}$
⑤ (1) $\sqrt{3}$ (2) $\sqrt{2}$ (3) $2\sqrt{3}$ (4) $-\sqrt{6}$ (5) $\sqrt{6} - 6$ (6) $5\sqrt{6}$ (7) 1 (8) $4 - 2\sqrt{3}$ (9) 2 (10) $8 + \sqrt{6}$

数学 I 授業プリント # 6

- ① (1) $2\sqrt{5}$ (2) $3\sqrt{3}$ (3) $5\sqrt{2}$ (4) 6
② (1) $10\sqrt{6}$ (2) $-4\sqrt{5}$ (3) $-2\sqrt{2}$ (4) $-15\sqrt{7}$
③ (1) $-8\sqrt{5} + 8\sqrt{3}$ (2) $\sqrt{3} - 9\sqrt{5}$ (3) $-4\sqrt{2} - 3\sqrt{6}$ (4) $2\sqrt{2} + \sqrt{3}$
④ (1) $\sqrt{10}$ (2) $\sqrt{21}$ (3) $3\sqrt{2}$ (4) $5\sqrt{2}$
⑤ (1) $3\sqrt{2}$ (2) $-7\sqrt{6}$ (3) 0
⑥ (2) $8\sqrt{3}$ (3) $4\sqrt{6}$ (4) $15\sqrt{2}$
⑦ (1) $10\sqrt{7}$ (2) $-18\sqrt{5}$ (3) $3\sqrt{6}$
⑧ (1) $\sqrt{14} - \sqrt{6}$ (2) $12 - 4\sqrt{3} + 3\sqrt{5} - \sqrt{15}$ (3) $10 + 10\sqrt{3}$ (4) $7 + 2\sqrt{10}$ (5) $-8\sqrt{3}$ (6) $6\sqrt{2}$

数学 I 授業プリント # 7

- ① (1) $8\sqrt{5}$ (2) $-5\sqrt{7}$ (3) $-4\sqrt{6}$ (4) $-\sqrt{3}$ (5) $-6\sqrt{3}-6\sqrt{6}$ (6) $3\sqrt{3}$ (7) $\sqrt{2}$ (8) $\sqrt{3}$
 ② (1) $\sqrt{15}$ (2) 15 (3) $3\sqrt{7}$ (4) $15\sqrt{6}$ (5) $\sqrt{15}+\sqrt{35}$ (6) $2\sqrt{3}-2-\sqrt{6}+\sqrt{2}$
 ③ (1) $8\sqrt{2}$ (2) $4\sqrt{3}$ (3) $7\sqrt{3}$
 ④ (1) $4\sqrt{2}-3\sqrt{6}$ (2) $4\sqrt{6}-13$ (3) $9-6\sqrt{2}$ (4) $13-4\sqrt{6}$
 ⑤ (1) $13\sqrt{5}$ (2) $2\sqrt{3}$ (3) $14\sqrt{2}$ (4) $3\sqrt{2}-2\sqrt{3}$ (5) $2\sqrt{6}-5$ (6) $9+4\sqrt{5}$

■ 頭の体操 $37-8=29 \div 1=5+4 \times 6$

数学 I 授業プリント # 7 (その 2)

- ① (1) $\frac{\sqrt{5}}{5}$ (2) $\frac{3\sqrt{2}}{2}$ (3) $2\sqrt{3}$ (4) $4\sqrt{2}$ (5) $\frac{4\sqrt{15}}{15}$ (6) $\frac{3\sqrt{3}}{2}$ (7) $\frac{\sqrt{15}}{5}$ (8) $3\sqrt{14}$
 ② (1) $\sqrt{3}-\sqrt{2}$ (2) $\frac{5\sqrt{7}+5\sqrt{3}}{4}$ (3) $2\sqrt{5}+2\sqrt{2}$ (4) $4-\sqrt{15}$ (5) $\frac{3\sqrt{3}+\sqrt{15}-3\sqrt{2}-\sqrt{10}}{4}$ (6) $\frac{\sqrt{35}-2\sqrt{5}+\sqrt{21}-2\sqrt{3}}{3}$

数学 I 授業プリント # 7 (その 3)

- ① (1) $\frac{5\sqrt{2}}{2}$ (2) $\frac{\sqrt{6}}{2}$ (3) $\frac{\sqrt{6}}{3}$ (4) $\frac{5\sqrt{3}}{4}$ (5) $\frac{\sqrt{21}}{3}$ (6) $2\sqrt{2}$ (7) $2\sqrt{5}$ (8) $\sqrt{2}$ (9) $\frac{\sqrt{30}}{6}$ (10) $\frac{\sqrt{6}}{9}$
 ② (1) $2\sqrt{6}-2\sqrt{2}$ (2) $\frac{\sqrt{15}-\sqrt{5}+3-\sqrt{3}}{2}$ (3) $\frac{7-2\sqrt{10}}{3}$ (4) $\sqrt{5}-\sqrt{3}$ (5) $3+2\sqrt{2}$ (6) $9+4\sqrt{5}$ (7) 5 (8) $6\sqrt{2}-\sqrt{6}-2\sqrt{3}$

数学 I 授業プリント # 7 (その 4)

- ① (1) $\frac{\sqrt{5}-\sqrt{2}}{3}$ (2) $\frac{\sqrt{7}+\sqrt{5}}{2}$ (3) $\frac{\sqrt{10}+\sqrt{3}}{7}$ (4) $\sqrt{5}-2$ (5) $-\sqrt{7}-3$ (6) $2\sqrt{7}-2\sqrt{2}$

数学 I 授業プリント # 8

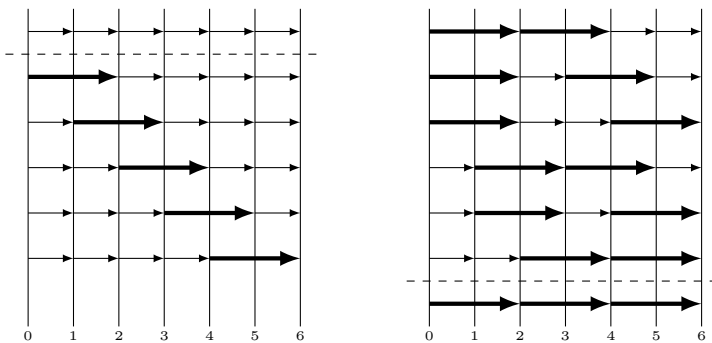
- ① (1) $13x-13$ (2) $7x^2-x+6$ (3) $12x+2$ (4) $5x^2-8x-4$ (5) $-3x+5$ (6) $-3x^2+14x+3$
 ② (1) $-7x^2+12x-2$ (2) $2x^2-4$ (3) $4x^2-13x+12$ (4) $-8x^2-1$
 ③ (1) $14x^6$ (2) $63x^9$ (3) $27x^7y^3$ (4) $-4x^3y^2$
 ④ (1) $x^2+12x+35$ (2) $2x^2+11x+12$ (3) $-7x^2-15x+18$ (4) $4x^2+x-3$ (5) $-10x^3+5x^2+2x-1$ (6) $7x^3-34x^2-19x-2$
 ⑤ (1) $-x^2+8x-2$ (2) x^3+2x^2+4 (3) $7x^2-6x+6$ (4) $7x^2-32x-15$ (5) $25x^2-40x+16$
 (6) $6x^3-20x^2+19x-4$

■ 頭の体操 1~1000 までの数字に 0 は 192 回出てきます

数学 I 授業プリント # 9

- ① (1) $3x+8$ (2) $5x+1$ (3) $8x-3$ (4) x^2-6x+5 (5) $2x^2+x+5$ (6) $3x^2+7x+3$
 ② (1) $x-2$ (2) $x+3$ (3) $-4x-3$ (4) $-x^2+8x+1$ (5) $5x-3$ (6) x^2-x+1
 ③ (1) $x^2+9x+14$ (2) $x^2+3x-18$ (3) x^3+x^2-7x+2 (4) x^3-x^2-5x-3 (5) x^3-5x^2+5x+3 (6) $2x^3+3x+2x^2+3$
 (7) $3x^2-5x-3$ (8) $-x^2+6x-5$ (9) $x^2+11x+24$ (10) $6x^2-13x-5$ (11) $6x^3-x^2+8x+3$ (12) $9x^3-20x^2+8$

■ 頭の体操 13 通り



数学 I 授業プリント # 10

- ① (1) $7x+12$ (2) $-2x-3$ (3) $-2x^2-3x-8$ (4) $2x^2+11x-1$
 ② (1) $3x-13$ (2) $5x+10$ (3) $-x^2$ (4) $13x-12$
 ③ (1) $x^2+8x+12$ (2) $6x^2+23x+20$
 ④ (1) $7x^2+8x-6$ (2) $4x^2+4x+5$ (3) $4x^2-6x$ (4) $5x^3+8x^2-9x+5$

⑤ (1) $x + 16$ (2) $5x^2 - 5x - 18$ (3) $2x^2 + 10x + 2$ (4) $22x^2 + x - 8$

⑥ (1) $12x^2 - 2x - 30$ (2) $8x^3 + 8x^2 + 8x + 3$

⑦ (1) $3x^2 + 2x + 5$ (2) $x^3 + x^2 + x$ (3) $6x^2 - 17x + 5$ (4) $x^3 + 8$

■ 頭の体操

- (1) 32 ($2^1, 2^2, 2^3, 2^4, 2^5$) (2) 99 ($1 \times 3, 3 \times 5, 5 \times 7, 7 \times 9, 9 \times 11$) (3) 18 (4 ずつ増加) (4) 13 (奇数) (5) 21 (一つおきにみると 3, 9, 15 となり 6 ずつ増加) (6) 18 (前の 2 つを足すと次の数字になっている, フィボナッチ数列と言います) (7) 37 (間隔をみると 5, 7, 9, 11 となっている) (8) 21 (間隔をみると 2, 3, 4, 5, 6 となっている) (9) 81 (一つおきにみると $3^1, 3^2, 3^3, 3^4$ になっている) (10) 36 ($1^2, 2^2, 3^2, 4^2, 5^2, 6^2$) (11) 97 (間隔をみると 2, 5, 10, 17, 26, 37 になり, さらに間隔をみると 3, 5, 7, 9, 11 になっている) (12) 67 (間隔をみると $1, 2^1, 2^2, 2^3, 2^4, 2^5$)

数学 I 授業プリント # 11

① (1) $x = 9$ (2) $x = 12$ (3) $x = -11$ (4) $x = 5$ (5) $x = 19$ (6) $x = -43$

② (1) $x = 7$ (2) $x = -3$ (3) $x = -7$ (4) $x = 5$ (5) $x = \frac{1}{2}$ (6) $x = -\frac{5}{2}$

③ (1) $x = -10$ (2) $x = 7$ (3) $x = -6$ (4) $x = 3$ (5) $x = -4$ (6) $x = -\frac{1}{2}$ (7) $x = -\frac{16}{7}$ (8) $x = \frac{5}{2}$ (9) $x = -\frac{5}{2}$
(10) $x = 2$

④ (1) $x = -16$ (2) $x = -30$ (3) $x = 2$ (4) $x = 4$ (5) $x = \frac{17}{3}$ (6) $x = -\frac{9}{4}$ (7) $x = 7$ (8) $x = \frac{5}{2}$

■ 頭の体操 $17 \times 4 = 68 + 25 = 93$

数学 I 授業プリント # 12

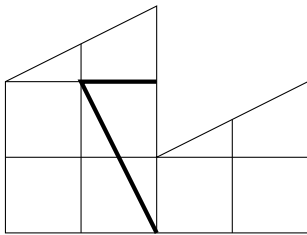
① (1) $x = -3$ (2) $x = 15$ (3) $x = 4$ (4) $x = 3$

② (1) $x = 8$ (2) $x = -7$ (3) $x = 9$ (4) $x = 3$

③ (1) $x = 10$ (2) $x = -11$ (3) $x = 6$ (4) $x = 0$ (5) $x = \frac{6}{5}$ (6) $x = -\frac{8}{3}$ (7) $x = -\frac{6}{7}$ (8) $x = -\frac{7}{3}$ (9) $x = \frac{1}{2}$ (10) $x = 2$
(11) $x = -5$ (12) $x = -2$ (13) $x = -3$ (14) $x = 9$ (15) $x = -3$ (16) $x = 2$ (17) $x = 5$ (18) $x = \frac{3}{2}$

④ (1) $x = 7$ (2) $x = 3$ (3) $x = 5$ (4) $x = -6$ (5) $x = -3$ (6) $x = 3$ (7) $x = 4$ (8) $x = -7$

■ 頭の体操



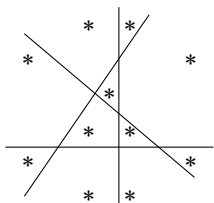
数学 I 授業プリント # 13

① (1) $y(x - z)$ (2) $4x(2y - z)$ (3) $a(x - 2y + 3z)$ (4) $3xy(2xz + 4xy - 3z^2)$

② (1) $(x + y)(x - y)$ (2) $(x + 6)(x - 6)$ (3) $(2x + 3)(2x - 3)$ (4) $(5x + 2y)(5x - 2y)$

③ (1) $(x + 3)^2$ (2) $(x - 4)^2$ (3) $(x - 6)^2$ (4) $(x + 5)^2$

④ (1) $(x + 3)(x + 5)$ (2) $(x + 2)(x + 9)$ (3) $(x + 2)(x + 4)$ (4) $(x + 5)(x + 4)$ (5) $(x + 7)(x + 2)$ (6) $(x - 8)(x - 9)$
(7) $(x - 10)(x + 4)$ (8) $(x + 6)(x - 3)$ (9) $(x + 4)(x + 7)$ (10) $(x - 9)(x - 11)$ (11) $(x - 9)(x + 10)$ (12) $(x - 9)(x + 5)$
(13) $(x + 8)(x - 1)$ (14) $(x - 7)(x - 3)$ (15) $2(x + 1)(x + 6)$ (16) $(x - 2y)(x + 3y)$ (17) $(x + 5)(x + 1)$ (18) $(x - 1)(y - 1)$



数学 I 授業プリント # 14

① (1) $xy(1 + z)$ (2) $5x(x - 4y - 2z)$ (3) $(x + 7)(x - 7)$ (4) $(4x + 7)(4x - 7)$ (5) $(x + 2)^2$ (6) $(x - 10)^2$

② (1) $+4$ と $+5$ (2) $(x + 4)(x + 5)$

③ (1) -6 と 4 (2) $(x-6)(x+4)$

④ (1) $(x+1)(x+6)$ (2) $(x+1)(x+2)$ (3) $(x+5)(x+7)$ (4) $(x-1)(x-3)$ (5) $(x-25)(x-3)$ (6) $(x-2)(x-3)$
(7) $(x-5)(x-10)$ (8) $(x+2)(x-3)$ (9) $(x-3)(x+1)$ (10) $(x+10)(x-1)$ (11) $(x-8)(x+5)$ (12) $(x+4)(x-7)$
(13) $(x+9)(x-10)$ (14) $(x+6)(x-3)$ (15) $(x-6)(x+2)$ (16) $(x-10y)(x+y)$ (17) $(x-5)(x+6)$ (18) $(x-2)(y-3)$

■ 頭の体操 $19 \times 2 = 38 + 7 = 45$

数学 I 授業プリント # 15

① (2) $x = -5, -3$ (3) $x = -7, -2$ (4) $x = -4, -7$ (5) $x = 8, 9$ (6) $x = -4, 10$ (7) $x = -10, 9$ (8) $x = 9, -5$
(9) $x = -4, 3$ (10) $x = -2, -14$ (11) $x = 8, -3$ (12) $x = 5, -2$

② (2) $x = \pm 6\sqrt{2}$ (3) $x = \pm 4\sqrt{3}$ (4) $x = \pm 5$ (5) $x = -11, 7$ (6) $x = 4 \pm \sqrt{6}$

③ (2) $x = 1 \pm \sqrt{10}$ (3) $x = -2 \pm \sqrt{7}$ (4) $x = -8, 2$

④ (1) $x = -4, 2$ (2) $x = 3, -7$ (3) $x = 6, -3$ (4) $x = -1, -4$ (5) $x = 1 \pm \sqrt{7}$ (6) $x = -5 \pm \sqrt{3}$ (7) $x = -3 \pm \sqrt{6}$
(8) $x = -\frac{3}{2} \pm \frac{\sqrt{29}}{2}$

■ 頭の体操

(1) 12 l ビーカーから 9 l ビーカーへ (12 l ビーカーに 3 l 残る)。

(2) 9 l ビーカーから 7 l ビーカーへ (9 l に 2 l 残る)。

(3) 7 l ビーカーから 12 l ビーカーへ (12 l ビーカーは 10 l になる)。

(4) 9 l ビーカーから 7 l ビーカーへ (9 l ビーカーは空になる)

(5) 12 l ビーカーから 9 l ビーカーへ (12 l ビーカーに 1 l 残る)

数学 I 授業プリント # 16

① (1) $x = 2, 3$ (2) $x = -3, -8$ (3) $x = 7, -3$ (4) $x = 6, -2$ (5) $x = 8, -5$ (6) $x = -4, 7$ (7) $x = 3, -1$ (8) $x = -10, 1$
(9) $x = 10, -9$ (10) $x = -6, 3$

② (1) $x = \pm 3\sqrt{7}$ (2) $x = \pm 2\sqrt{10}$ (3) $x = 9 \pm \sqrt{33}$ (4) $x = -5 \pm 2\sqrt{5}$

③ (1) $x = -2 \pm \sqrt{3}$ (2) $x = -3 \pm \sqrt{6}$ (3) $x = -\frac{5}{2} \pm \frac{\sqrt{29}}{2}$ (4) $x = \frac{3}{2} \pm \frac{\sqrt{13}}{2}$

④ (1) $x = -2, -3$ (2) $x = 7, -1$ (3) $x = -4, -2$ (4) $x = -5, 3$ (5) $x = -1, -4$ (6) $x = -3, -1$

⑤ (1) $x = -\frac{7}{2} \pm \frac{\sqrt{57}}{2}$ (2) $x = \frac{3}{2} \pm \frac{\sqrt{13}}{2}$

■ 頭の体操 $54 \times 3 = 27 \times 6 = 18 \times 9$

数学 I 授業プリント # 17

① (1) -16 (2) 19 (3) -3 (4) 24 (5) 90 (6) 12 (7) 6 (8) -3 (9) 43 (10) 37 (11) -21

② (1) -5 (2) 12 (3) 28 (4) -8 (5) 16 (6) 11 (7) 16 (8) -9

③ (1) $2\sqrt{2}$ (2) $2\sqrt{3}$ (3) $3\sqrt{5}$ (4) $5\sqrt{3}$ (5) $2\sqrt{6}$ (6) $3\sqrt{15}$

④ (1) $8\sqrt{5}$ (2) $2\sqrt{3}$ (3) $2\sqrt{3} + 4\sqrt{2}$ (4) $-3\sqrt{3} - 4\sqrt{2}$ (5) $3\sqrt{3}$ (6) $2\sqrt{2}$

⑤ (1) $\sqrt{3}$ (2) $\sqrt{2}$ (3) $2\sqrt{3}$ (4) $-\sqrt{6}$ (5) $\sqrt{6} - 6$ (6) $5\sqrt{6}$ (7) 1 (8) $4 - 2\sqrt{3}$ (9) 2 (10) $8 + \sqrt{6}$

■ 頭の体操 $78 \times 2 = 4 \times 39 = 156$

数学 I 授業プリント # 18

① (1) $13x - 13$ (2) $7x^2 - x + 6$ (3) $12x + 2$ (4) $5x^2 - 8x - 4$ (5) $-3x + 5$ (6) $-3x^2 + 14x + 3$

② (1) $-7x^2 + 12x - 2$ (2) $2x^2 - 4$ (3) $4x^2 - 13x + 12$ (4) $-8x^2 - 1$

③ (1) $x^2 + 12x + 35$ (2) $2x^2 + 11x + 12$ (3) $-7x^2 - 15x + 18$ (4) $4x^2 + x - 3$ (5) $-10x^3 + 5x^2 + 2x - 1$ (6) $7x^3 - 34x^2 - 19x - 2$

④ (1) $x = 10$ (2) $x = -11$ (3) $x = 6$ (4) $x = 0$ (5) $x = -\frac{6}{7}$ (6) $x = -\frac{7}{3}$ (7) $x = -5$ (8) $x = -2$ (9) $x = 5$ (10) $x = \frac{3}{2}$

⑤ (1) $x = -5, -3$ (2) $x = -9, -2$ (3) $x = -4, -2$ (4) $x = -5, -4$ (5) $x = -7, -2$ (6) $x = 8, 9$ (7) $x = 10, -4$
(8) $x = -6, 3$ (9) $x = -4, -7$ (10) $x = 9, 11$ (11) $x = -10, 9$ (12) $x = -5, 9$

⑥ (1) $x = \pm 2\sqrt{6}$ (2) $x = \pm 6\sqrt{2}$ (3) $x = 11, -7$ (4) $x = 4 \pm \sqrt{6}$

⑦ (1) $x = 5 \pm \sqrt{21}$ (2) $x = 1 \pm \sqrt{10}$

数学 I 授業プリント # 19

例 $(3x+2)(x+1)$ ① $(2x+3)(3x-5)$ ② $(2x+1)(x+1)$ ③ $(2x+1)(x+3)$

- ④ (1) $(3x-1)(x-2)$ (2) $(6x-1)(2x+1)$ (3) $(2x+1)(x+2)$ (4) $(3x+4)(x-2)$ (5) $(3x-2)(x-3)$ (6) $(2x+3)(5x-1)$
 (7) $(3x-4)(2x-3)$ (8) $(4x-3)(x+5)$ (9) $(6x+5)(2x-1)$ (10) $(3x-4)(2x-5)$ (11) $(2x-1)(3x-4)$ (12) $(2x+5)(x+1)$
 (13) $(3x+8)(x+1)$ (14) $(2x-1)(x+6)$ (15) 出題ミス (16) $(4x-3)(3x-7)$ (17) $2(3x-2)(2x-3)$ (18) $(6x+5)(2x-7)$
 (19) $(10x-1)(x-7)$ (20) $(8x-7)(x-1)$ (21) $(3x+1)(4x-1)$ (22) $(3x+4)(7x-5)$

数学 I 授業プリント # 20

- ① $(2x+3)(x-1)$ ② $(2x-3)(x-2)$ ③ $(2x+1)(3x+1)$ ④ $(2x+1)(3x-4)$
 ⑤ (1) $(3x+2)(x+1)$ (2) $(2x+1)(x+3)$ (3) $(3x+2)(x-2)$ (4) $(5x-3)(x+2)$ (5) $(3x-2)(x-1)$ (6) $(3x-2)(x+2)$
 (7) $(5x-3)(x+2)$ (8) $(3x-4)(4x+3)$ (9) $(2x+3)(3x+4)$ (10) $(4x-5)(3x-2)$ (11) $(6x-5)(x+3)$ (12) $(12x-1)(x+1)$
 (13) $(3x-2)(x+4)$ (14) $(5x+3)(2x-1)$ (15) $(6x-1)(x-12)$ (16) $(4x-7)(3x-2)$ (17) $(5x-1)(2x-7)$ (18) $(6x-7)(2x+5)$
 (19) $(4x-7)(2x-1)$ (20) $(7x-4)(3x+5)$ (21) $(8x-3)(x-7)$ (22) $(9x-4)(2x-5)$

数学 I 授業プリント # 21

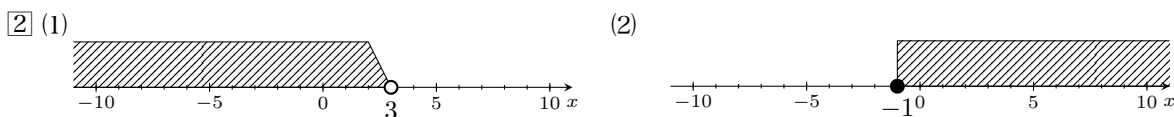
- ① (1) $\frac{-3 \pm \sqrt{13}}{2}$ (2) $\frac{-5 \pm \sqrt{17}}{4}$ (3) $\frac{-7 \pm \sqrt{13}}{6}$ (4) $\frac{1 \pm \sqrt{5}}{4}$
 ② (1) $\frac{-3 \pm \sqrt{5}}{2}$ (2) $\frac{3 \pm \sqrt{5}}{2}$ (3) $\frac{3 \pm \sqrt{17}}{2}$
 ③ (1) $a=2, b=-3, c=-1$ (2) $\frac{3 \pm \sqrt{17}}{4}$
 ④ (1) $x = \frac{3 \pm \sqrt{41}}{4}$ (2) $x = \frac{1 \pm \sqrt{13}}{2}$ (3) $x = \frac{-3 \pm \sqrt{17}}{4}$ (4) $x = \frac{-5 \pm \sqrt{29}}{2}$ (5) $x = \frac{1 \pm \sqrt{37}}{6}$ (6) $x = \frac{-1 \pm \sqrt{13}}{6}$ (7) $x = \frac{-5 \pm \sqrt{17}}{4}$
 (8) $x = \frac{3 \pm \sqrt{5}}{2}$
 ⑤ (1) $x = \frac{1 \pm \sqrt{13}}{3}$ (2) $x = \frac{3 \pm 2\sqrt{3}}{3}$

数学 I 授業プリント # 22

- ① (1) $a=3, b=-9, c=5$ (2) $\frac{9 \pm \sqrt{21}}{6}$
 ② (1) $a=1, b=3, c=-5$ (2) $\frac{-3 \pm \sqrt{29}}{2}$
 ③ (1) $a=3, b=-5, c=1$ (2) $\frac{5 \pm \sqrt{13}}{6}$
 ④ (1) $x = \frac{9 \pm \sqrt{101}}{10}$ (2) $x = \frac{5 \pm \sqrt{17}}{2}$ (3) $x = \frac{3 \pm \sqrt{17}}{4}$ (4) $x = \frac{-5 \pm \sqrt{61}}{6}$ (5) $x = \frac{-5 \pm \sqrt{105}}{4}$ (6) $x = \frac{1 \pm \sqrt{33}}{4}$ (7) $x = \frac{1 \pm \sqrt{17}}{4}$
 (8) $x = \frac{1 \pm \sqrt{65}}{4}$ (9) $x = \frac{3 \pm \sqrt{13}}{2}$ (10) $x = \frac{-7 \pm \sqrt{73}}{4}$ (11) $x = \frac{3 \pm \sqrt{5}}{2}$ (12) $x = \frac{5 \pm \sqrt{13}}{2}$ (13) $x = \frac{-3 \pm \sqrt{41}}{4}$ (14) $x = \frac{7 \pm \sqrt{13}}{6}$
 (15) $x = \frac{-7 \pm \sqrt{57}}{2}$ (16) $x = \frac{1 \pm \sqrt{113}}{14}$
 ⑤ (1) $x = -2 \pm \sqrt{7}$ (2) $x = \frac{3 \pm \sqrt{3}}{2}$ (3) $x = 2 \pm \sqrt{5}$ (4) $x = \frac{-1 \pm \sqrt{11}}{2}$ (5) $x = 1 \pm \sqrt{2}$ (6) $x = 2 \pm \sqrt{2}$ (7) $x = \frac{2 \pm \sqrt{3}}{2}$

数学 I 授業プリント # 23

- ① (1) $4x > 1300$ (2) $2x + 5 \leq 12$



- ③ (1) $x < 7$ (2) $x > -2$ (3) $x < 3$ (4) $x > -4$
 ④ (1) $x < 4$ (2) $x \geq -4$ (3) $x > 9$ (4) $x \leq -1$
 ⑤ (1) $x > -4$ (2) $x < 5$ (3) $x \geq 6$ (4) $x \geq 0$
 ⑥ (1) $x < 1$ (2) $x < 2$ (3) $x > -3$ (4) $x \leq 5$ (5) $x \leq 1$ (6) $x > -2$ (7) $x \geq -1$ (8) $x > 3$

数学 I 授業プリント # 24

- ① (1) $x < 9$ (2) $x \geq 12$ (3) $x \leq -11$ (4) $x > 5$ (5) $x > 19$ (6) $x > -43$
 ② (1) $x \geq 7$ (2) $x \leq -7$ (3) $x \leq 3$ (4) $x < \frac{1}{2}$
 ③ (1) $x > -3$ (2) $x \leq 5$ (3) $x < -12$ (4) $x > -\frac{5}{2}$
 ④ (1) $x < -10$ (2) $x \geq 7$ (3) $x > -6$ (4) $x > 3$ (5) $x < -4$ (6) $x \geq -\frac{1}{2}$ (7) $x \geq -\frac{16}{7}$ (8) $x > \frac{5}{2}$ (9) $x \leq -\frac{5}{2}$
 (10) $x > 2$
 ⑤ (1) $x < -16$ (2) $x \leq -30$ (3) $x < 2$ (4) $x \geq 4$ (5) $x < \frac{17}{3}$ (6) $x \leq -\frac{9}{4}$ (7) $x \leq 7$ (8) $x > \frac{5}{2}$

数学 I 授業プリント # 24 (その2)

- ① (1) $x < -14$ (2) $x \geq \frac{7}{3}$ (3) $x > \frac{1}{2}$ (4) $x \leq 3$ (5) $x < -7$ (6) $x \leq 2$ (7) $x \leq 1$ (8) $x < -5$ (9) $x > -1$
 (10) $x \leq -\frac{9}{2}$ (11) $x < \frac{5}{2}$ (12) $x \geq -1$ (13) $x < 7$ (14) $x < 2$ (15) $x \geq 3$ (16) $x < -3$ (17) $x < -3$ (18) $x \geq -3$

- (19) $x > -2$ (20) $x < -\frac{3}{2}$ (21) $x \geq -\frac{3}{2}$ (22) $x \geq -1$ (23) $x < 4$ (24) $x > -1$ (25) $x > 2$ (26) $x \geq 2$ (27) $x \geq -3$
 (28) $x \geq 4$ (29) $x > 4$ (30) $x \geq 2$ (31) $x > -5$ (32) $x < -1$ (33) $x > 3$ (34) $x < -3$ (35) $x \geq -4$ (36) $x \leq 2$ (37) $x > 2$
 (38) $x > -3$ (39) $x > -\frac{6}{7}$ (40) $x \geq 4$ (41) $x < -16$ (42) $x \geq -2$ (43) $x \leq -\frac{9}{4}$ (44) $x \leq \frac{5}{2}$ (45) $x > 3$ (46) $x < 3$
 (47) $x > -4$ (48) $x > -2$ (49) $x < -3$ (50) $x \leq 2$ (51) $x \leq 2$ (52) $x \leq -2$

数学 I 授業プリント # 25

- ① (1) $x > -3$ (2) $x < 15$ (3) $x \geq 4$ (4) $x > 3$
 ② (1) $x < -9$ (2) $x \geq -\frac{33}{7}$
 ③ (1) $x < -9$ (2) $x \geq \frac{3}{2}$
 ④ (1) $x \leq 10$ (2) $x \geq -11$ (3) $x \geq 6$ (4) $x < 0$ (5) $x > \frac{6}{5}$ (6) $x < -\frac{8}{3}$ (7) $x > -\frac{6}{7}$ (8) $x \leq -\frac{7}{3}$ (9) $x < \frac{1}{2}$ (10) $x \leq 2$
 (11) $x \geq -5$ (12) $x \geq -2$ (13) $x > -3$ (14) $x < 9$ (15) $x < -3$ (16) $x < 2$ (17) $x > 5$ (18) $x \leq \frac{3}{2}$ (19) $x \leq 7$ (20) $x > 3$
 (21) $x > 5$ (22) $x \leq -6$ (23) $x \geq -\frac{15}{2}$ (24) $x > 0$ (25) $x < 2$ (26) $x > \frac{-9}{2}$ (27) $x \geq -26$ (28) $x \leq -\frac{5}{2}$ (29) $x > 0$
 (30) $x \geq \frac{24}{5}$

数学 I 授業プリント # 25 (その2)

解答省略

数学 I 授業プリント # 26

- ① 6枚 ($3x + 7 \leq 25$ を解くと $x \leq 6$)
 ② 7個 ($0.9(200x + 100) \leq 1400$ を解くと $x \leq 7.2\dots$)
 ③ (1) $x > -4$ (2) $x > -1$ (3) $x \geq 1$ (4) $x < 6$ (5) $x > 3$ (6) $x \geq 0$ (7) $x < -2$ (8) $x \geq -4$ (9) $x \leq -3$ (10) $x > -\frac{1}{2}$
 (11) $x < \frac{9}{5}$ (12) $x \leq -\frac{5}{3}$
 ④ 63個 ($30x + 100 \leq 2000$ を解くと $x \leq 63.33\dots$)
 ⑤ (1) $20 - x$ (2) $140x + 100(20 - x)$ (3) $140x + 100(20 - x) \leq 2500$ を解くと $x \leq 12.5$ なので
 チーズケーキ 12個, シュークリーム 8個
 ⑥ なし 21個, 柿 9個 ($なし x$ 個として $200x + 80(30 - x) \leq 5000$ を解くと $x \leq 21.66\dots$)
 ⑦ (1) $x > 7$ (2) $x < 4$ (3) $x \leq 2$ (4) $x < \frac{2}{3}$ (5) $x < 9$ (6) $x \geq -\frac{4}{5}$ (7) $x > -\frac{1}{2}$ (8) $x < \frac{7}{15}$ (9) $x > 0$ (10) $x < 7$

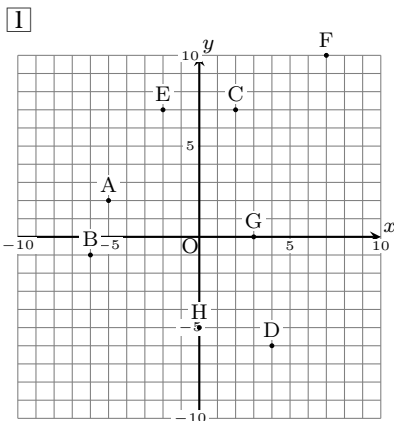
数学 I 授業プリント # 26 (その2)

- ① (1) $1 < x \leq 4$ (2) $1 \leq x < 3$ (3) $x \geq 3$ (4) $-3 \leq x < -1$ (5) $-4 < x \leq 2$ (6) $-1 \leq x < 2$
 (7) $-2 < x \leq 4$ (8) $2 < x < 5$ (9) $-2 \leq x < 0$ (10) $x \geq 6$

数学 I 授業プリント # 26 (その3)

- ① (1) $3 < x \leq 9$ (2) $x \geq 4$ (3) $x \leq 1$ (4) $-5 < x < 4$ (5) $-4 \leq x \leq 7$ (6) $x \geq 3$ (7) $-3 < x < 2$ (8) $x \leq -2$
 (9) $-4 \leq x \leq 7$ (10) $x > 4$

数学 I 授業プリント # 27



②

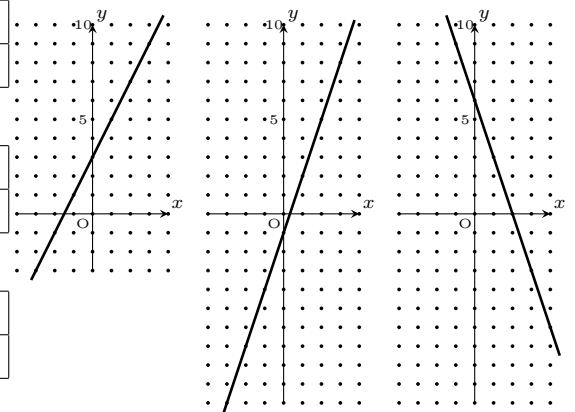
x	-2	-1	0	1	2	3
y	-1	1	3	5	7	9

③

x	-2	-1	0	1	2	3
y	-7	-4	-1	2	5	8

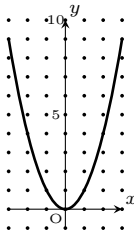
④

x	-2	-1	0	1	2	3
y	9	6	3	0	-3	-6



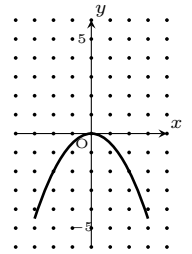
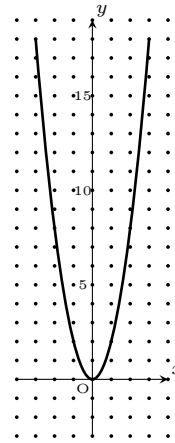
5

x	-3	-2	-1	0	1	2	3
y	9	4	1	0	1	4	9



6

x	-3	-2	-1	0	1	2	3
y	18	8	2	0	2	8	18



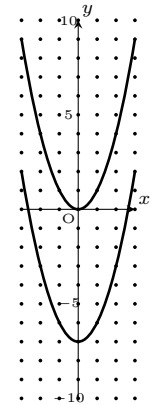
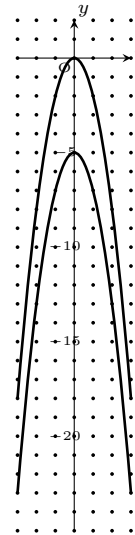
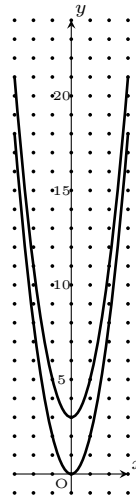
7

x	-3	-2	-1	0	1	2	3
y	$-\frac{9}{2}$	-2	$-\frac{1}{2}$	0	$-\frac{1}{2}$	-2	$-\frac{9}{2}$

数学 I 授業プリント # 28

1

x	-3	-2	-1	0	1	2	3
$y = 2x^2$	18	8	2	0	2	8	18
$y = 2x^2 + 3$	21	11	5	3	5	11	21



2

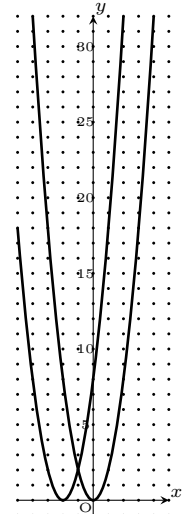
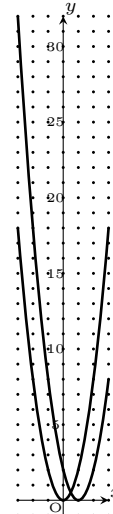
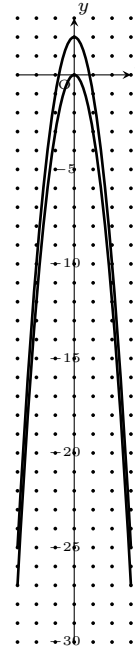
x	-3	-2	-1	0	1	2	3
$y = -2x^2$	-18	-8	-2	0	-2	-8	-18
$y = -2x^2 - 5$	-23	-13	-7	-5	-7	-13	-23

3

x	-3	-2	-1	0	1	2	3
$y = x^2$	9	4	1	0	1	4	9
$y = x^2 - 7$	2	-3	-6	-7	-6	-3	2

4

x	-3	-2	-1	0	1	2	3
$y = -3x^2$	-27	-12	-3	0	-3	-12	-27
$y = -3x^2 + 2$	-25	-10	-1	2	-1	-10	-25



5

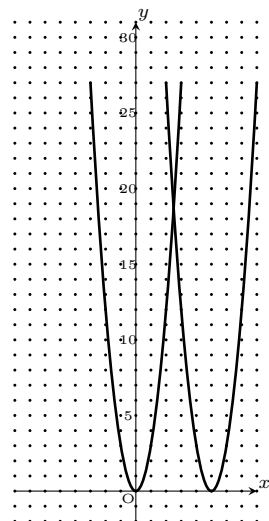
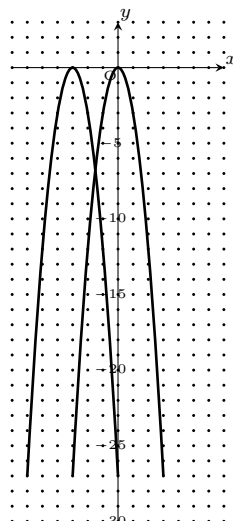
x	-3	-2	-1	0	1	2	3
$y = 2x^2$	18	8	2	0	2	8	18
$y = 2(x-1)^2$	32	18	8	2	0	2	8

6

x	-3	-2	-1	0	1	2	3
$y = 2x^2$	18	8	2	0	2	8	18
$y = 2(x+2)^2$	2	0	2	8	18	32	50

7

x	-3	-2	-1	0	1	2	3
$y = -3x^2$	-27	-12	-3	0	-3	-12	-27
$y = -3(x+3)^2$	0	-3	-12	-27	-48	-75	-108



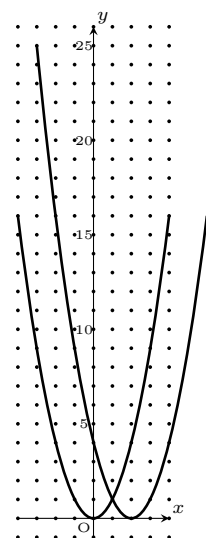
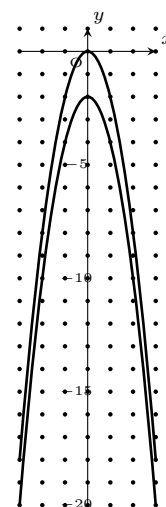
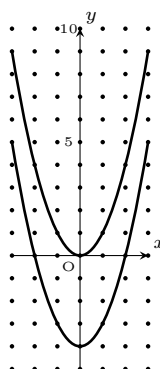
8

x	-3	-2	-1	0	1	2	3
$y = 3x^2$	27	12	3	0	3	12	27
$y = 3(x-5)^2$	192	147	108	75	48	27	12

数学 I 授業プリント # 29

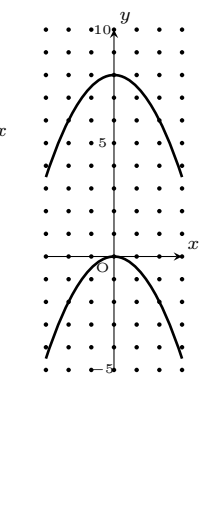
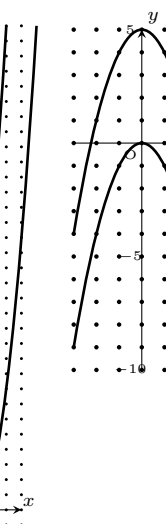
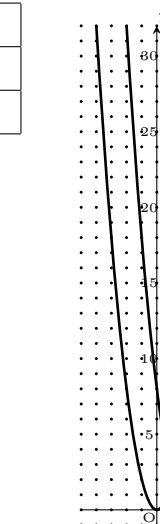
1

x	-3	-2	-1	0	1	2	3
$y = x^2$	9	4	1	0	1	4	9
$y = x^2 - 4$	5	0	-3	-4	-3	0	5



2

x	-3	-2	-1	0	1	2	3
$y = -2x^2$	-18	-8	-2	0	-2	-8	-18
$y = -2x^2 - 2$	-20	-10	-4	-2	-4	-10	-20



3

x	-4	-3	-2	-1	0	1	2	3	4
$y = x^2$	16	9	4	1	0	1	4	9	16
$y = (x-2)^2$	36	25	16	9	4	1	0	1	4

4

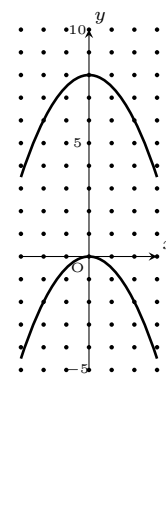
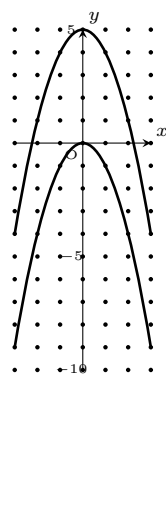
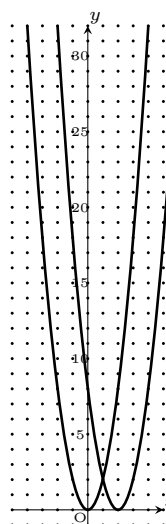
x	-4	-3	-2	-1	0	1	2	3	4
$y = 2x^2$	32	18	8	2	0	2	8	18	32
$y = 2(x-2)^2$	72	50	32	18	8	2	0	2	8

5

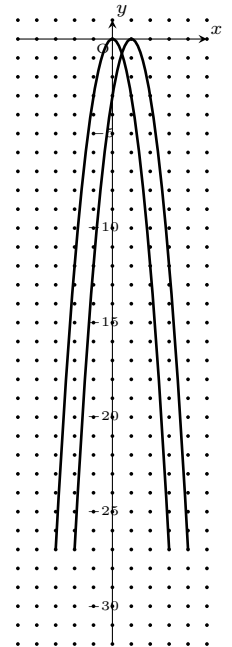
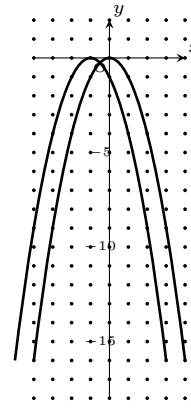
x	-3	-2	-1	0	1	2	3
$y = -x^2$	-9	-4	-1	0	-1	-4	-9
$y = -x^2 + 5$	-4	1	4	5	4	1	-4

6

x	-3	-2	-1	0	1	2	3
$y = -\frac{1}{2}x^2$	$-\frac{9}{2}$	-2	$-\frac{1}{2}$	0	$-\frac{1}{2}$	-2	$-\frac{9}{2}$
$y = -\frac{1}{2}x^2 + 8$	$\frac{7}{2}$	6	$\frac{15}{2}$	8	$\frac{15}{2}$	6	$\frac{7}{2}$



x	-4	-3	-2	-1	0	1	2	3	4
$y = -x^2$	-16	-9	-4	-1	0	-1	-4	-9	-16
$y = -(x+1)^2$	-9	-4	-1	0	-1	-4	-9	-16	-25



x	-4	-3	-2	-1	0	1	2	3	4
$y = -3x^2$	-48	-27	-12	-3	0	-3	-12	-27	-48
$y = -3(x-1)^2$	-75	-48	-27	-12	-3	0	-3	-12	-27

数学 I 授業プリント # 30

x	-2	-1	0	1	2	3
y	21	11	5	3	5	11

② 頂点 (3, 2), 軸 $x = 3$

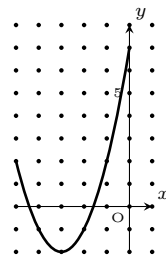
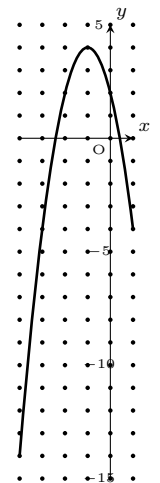
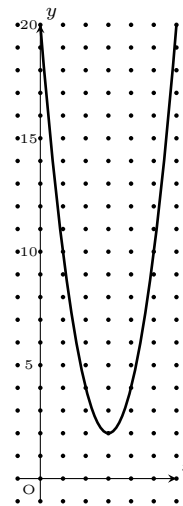
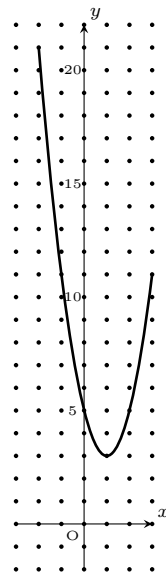
x	1	2	3	4	5	6
y	10	4	2	4	10	20

③ 頂点 (-1, 4), 軸 $x = -1$

x	-4	-3	-2	-1	0	1
y	-14	-4	2	4	2	-4

④ 頂点 (-3, -2), 軸 $x = -3$

x	-5	-4	-3	-2	-1	0
y	2	-1	-2	-1	2	7



数学 I 授業プリント # 31

1 頂点 (2, 1), 軸 $x = 2$

x	-1	0	1	2	3	4
y	10	5	2	1	2	5

2 頂点 (1, -4), 軸 $x = 1$

x	-1	0	1	2	3	4
y	4	-2	-4	-2	4	14

3 頂点 (-1, 8), 軸 $x = -1$

x	-3	-2	-1	0	1	2
y	0	6	8	6	0	-10

4 頂点 (-2, -1), 軸 $x = -2$

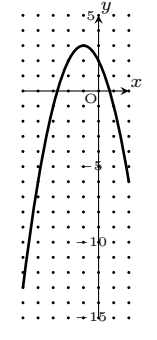
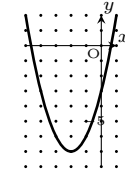
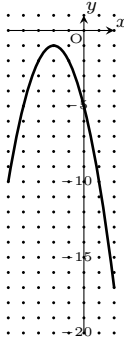
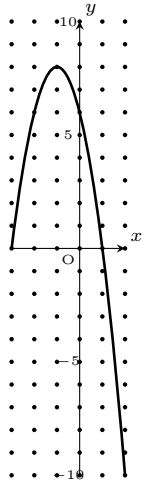
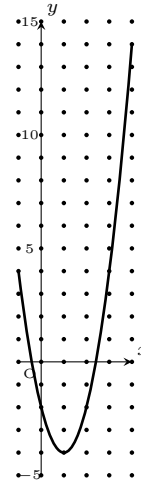
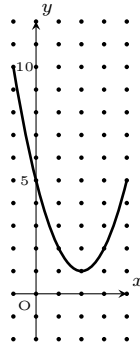
x	-5	-4	-3	-2	-1	0	1	2
y	-10	-5	-2	-1	-2	-5	-10	-17

5 頂点 (-2, -7), 軸 $x = -2$

x	-5	-4	-3	-2	-1	0
y	2	-3	-6	-7	-6	-3

6 頂点 (-1, 3), 軸 $x = -1$

x	-5	-4	-3	-2	-1	0	1	2
y	-13	-6	-1	2	3	2	-1	-6



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1

x	-3	-2	-1	0	1
y	5	-1	-3	-1	5

2

x	-1	0	1	2	3	4
y	9	4	1	0	1	4

3

x	-2	-1	0	1	2	3
y	21	11	5	3	5	11

4

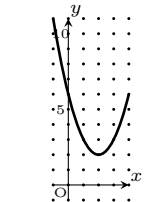
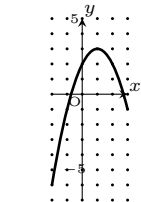
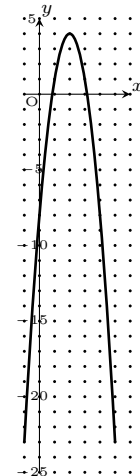
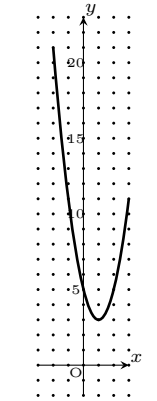
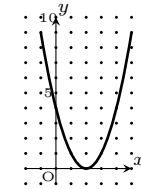
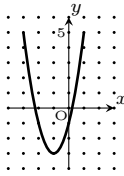
x	0	1	2	3	4	5
y	-8	1	4	1	-8	-23

5

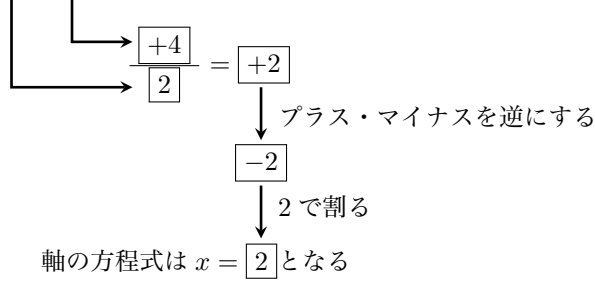
x	-2	-1	0	1	2	3
y	-6	-1	2	3	2	-1

6

x	-1	0	1	2	3	4
y	11	6	3	2	3	6



$y = 2x^2 + 4x - 1$ の軸の式は次のように計算すると簡単に求められる。



$y = x^2 - 4x + 4$ の軸の式は $x = 2$

$y = 2x^2 - 4x + 5$ の軸の式は $x = 1$

$y = -3x^2 + 12x - 8$ の軸の式は $x = 2$

$y = -x^2 + 2x + 2$ の軸の式は $x = 1$

$y = x^2 - 4x + 6$ の軸の式は $x = 2$

数学 I 授業プリント # 33

① $y = x^2 - 2x + 2$ の軸の方程式は $x = 1$

③ $y = -2x^2 - 12x + 7$ の軸の方程式は $x = -3$

⑤ (1) $y = -2x^2 + 8x - 6$ の軸の式は $x = 2$

(2)

x	-1	0	1	2	3	4
y	-16	-6	0	2	0	-6

⑥ (1) $y = x^2 - 2x - 2$ の軸の式は $x = 1$

(2)

x	-1	0	1	2	3	4
y	1	-2	-3	-2	1	6

⑦ (1) $y = -x^2 + 6x - 5$ の軸の式は $x = 3$

(2)

x	0	1	2	3	4	5
y	-5	0	3	4	3	0

⑧ (1) $y = -2x^2 - 4x + 2$ の軸の式は $x = -1$

(2)

x	-4	-3	-2	-1	0	1
y	-14	-4	2	4	2	-4

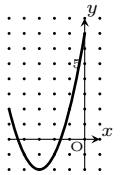
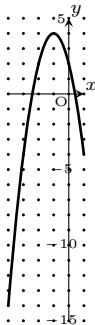
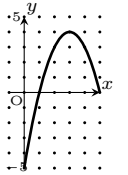
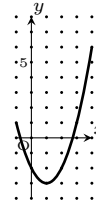
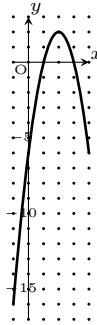
⑨ (1) $y = x^2 + 6x + 7$ の軸の式は $x = -3$

(2)

x	-5	-4	-3	-2	-1	0
y	2	-1	-2	-1	2	7

② $y = -5x^2 + 20x + 11$ の軸の方程式は $x = 2$

④ $y = -x^2 + x + 1$ の軸の方程式は $x = \frac{1}{2}$



数学 I 授業プリント # 34

① (1) $x = -2$

(2)

x	-6	-5	-4	-3	-2	-1
y	-5	2	7	10	11	10

(3) 頂点 $(-2, 11)$

② (1) 軸の式 $x = 1$

(2)

x	-2	-1	0	1	2	3
y	2	-3	-6	-7	-6	-3

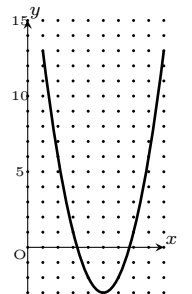
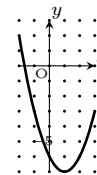
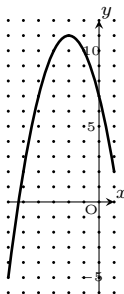
(3) 頂点 $(1, -7)$

③ (1) 軸の式 $x = 5$

(2)

x	2	3	4	5	6	7	8	9
y	6	1	-2	-3	-2	1	6	13

(3) 頂点 $(5, -3)$



④ (1) 軸の式 $x = 1$

(2)

x	-2	-1	0	1	2	3
y	21	11	5	3	5	11

(3) 頂点 $(1, 3)$

⑤ (1) 軸の式 $x = 2$

(2)

x	-1	0	1	2	3	4
y	10	5	2	1	2	5

(3) 頂点 $(2, 1)$

⑥ (1) 軸の式 $x = -1$

(2)

x	-3	-2	-1	0	1	2
y	0	6	8	6	0	-10

(3) 頂点 $(-1, 8)$

⑦ (1) 軸の式 $x = 2$

(2)

x	-1	0	1	2	3	4
y	14	4	-2	-4	-2	4

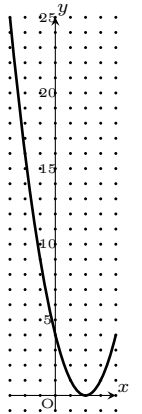
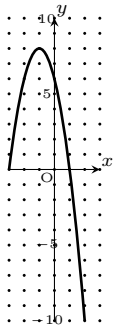
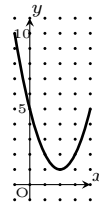
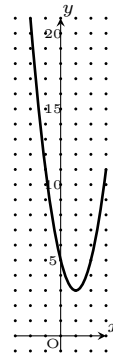
(3) 頂点 $(2, -4)$

⑧ (1) 軸の式 $x = 2$

(2)

x	-3	-2	-1	0	1	2	3	4
y	25	16	9	4	1	0	1	4

(3) 頂点 $(2, 0)$



数学 I 授業プリント # 34 (その 2)

① $y = (x + 2)^2 - 7$ ② $y = (x + 3)^2 - 4$ ③ $y = (x + 4)^2 + 5$ ④ $y = (x - 3)^2 - 19$ ⑤ $y = 2(x - 1)^2 - 4$

⑥ $y = 2(x + 2)^2 - 14$ ⑦ $y = -2(x + 1)^2 + 8$ ⑧ $y = -(x - 3)^2 + 4$

数学 I 授業プリント # 35

① (1) $x = 2$

(2)

x	-1	0	1	2	3	4
y	8	3	0	-1	0	3

(3) 最大値 3 ($x = 0$ のとき) 最小値 -1 ($x = 2$ のとき)

② (1) $x = -2$

(2)

x	-4	-3	-2	-1	0	1
y	6	9	10	9	6	1

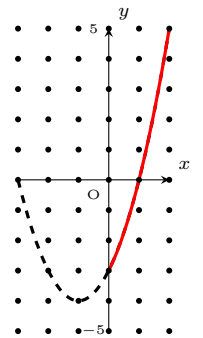
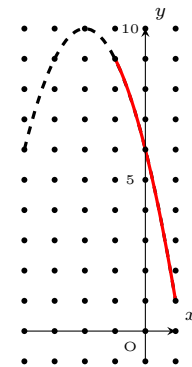
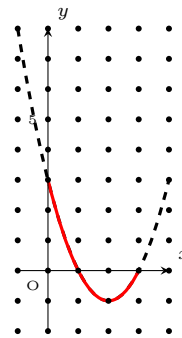
(3) 最大値 9 ($x = -1$ のとき) 最小値 1 ($x = 1$ のとき)

③ (1) $x = -1$

(2)

x	-3	-2	-1	0	1	2
y	0	-3	-4	-3	0	5

(3) 最大値 5 ($x = 2$ のとき) 最小値 -3 ($x = 0$ のとき)

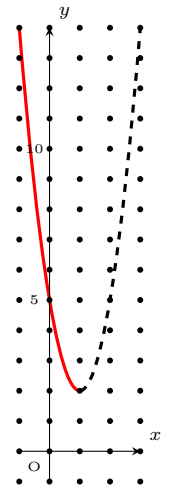
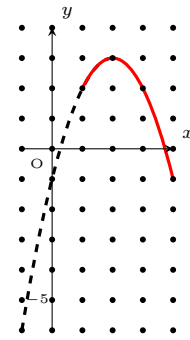
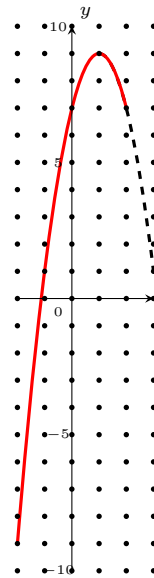


④ (1) $x = 1$

(2)

x	-2	-1	0	1	2	3
y	-9	1	7	9	7	1

(3) 最大値 9 ($x = 1$ のとき) 最小値 -9 ($x = -2$ のとき)



⑤ (1) $x = 2$

(2)

x	-1	0	1	2	3	4
y	-6	-1	2	3	2	-1

(3) 最大値 3 ($x = 2$ のとき) 最小値 -1 ($x = 4$ のとき)

⑥ (1) $x = 1$

(2)

x	-1	0	1	2
y	14	5	2	5

(3) 最大値 14 ($x = -1$ のとき) 最小値 2 ($x = 1$ のとき)

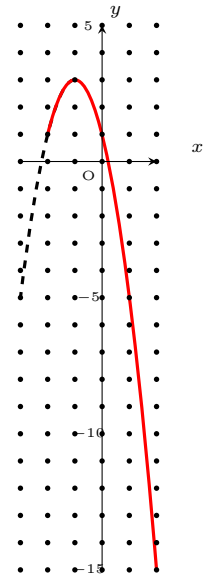
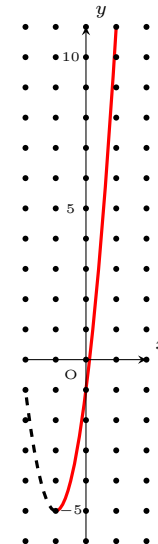
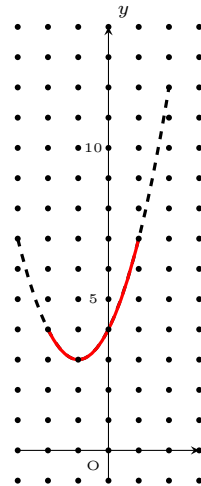
数学 I 授業プリント # 36

① (1) $x = -1$

(2)

x	-3	-2	-1	0	1	2
y	7	4	3	4	7	12

(3) 最大値 7 ($x = 1$ のとき) 最小値 3 ($x = -1$ のとき)



② (1) $x = -1$

(2)

x	-2	-1	0	1
y	-1	-5	-1	11

(3) 最大値 11 ($x = 1$ のとき) 最小値 -5 ($x = -1$ のとき)

③ (1) $x = -1$

(2)

x	-3	-2	-1	0	1	2
y	-5	1	3	1	-5	-15

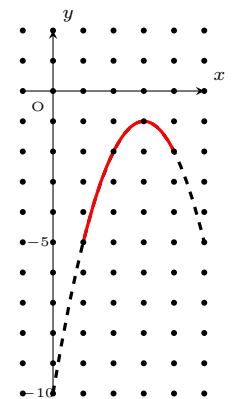
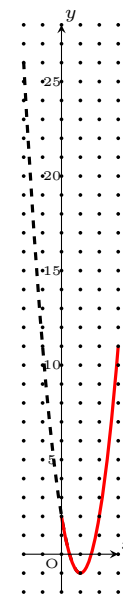
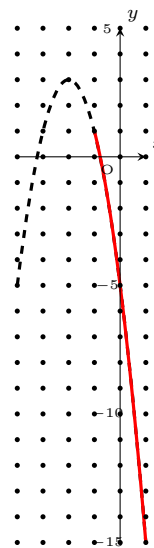
(3) 最大値 3 ($x = -1$ のとき) 最小値 -5 ($x = 1$ のとき)

④ (1) $x = -2$

(2)

x	-4	-3	-2	-1	0	1
y	-5	1	3	1	-5	-15

(3) 最大値 1 ($x = -1$ のとき) 最小値 -15 ($x = 1$ のとき)



⑤ (1) $x = 1$

(2)

x	-2	-1	0	1	2	3
y	26	11	2	-1	2	11

(3) 最大値 11 ($x = 3$ のとき) 最小値 -1 ($x = 1$ のとき)

⑥ (1) $x = 3$

(2)

x	0	1	2	3	4	5
y	-10	-5	-2	-1	-2	-5

(3) 最大値 -1 ($x = 3$ のとき) 最小値 -5 ($x = 1$ のとき)

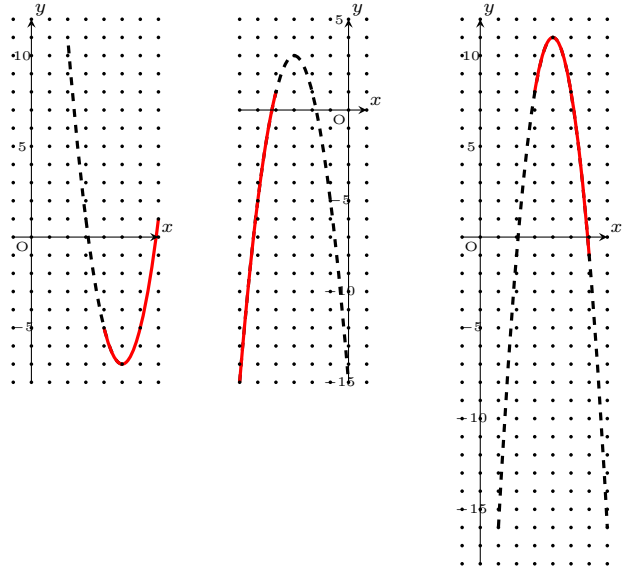
数学 I 授業プリント # 37

① (1) $x = 5$

(2)

x	2	3	4	5	6	7
y	11	1	-5	-7	-5	1

(3) 最大値 1 ($x = 7$ のとき) 最小値 -7 ($x = 5$ のとき)



② (1) $x = -3$

(2)

x	-6	-5	-4	-3	-2	-1
y	-15	-5	1	3	1	-5

(3) 最大値 1 ($x = -4$ のとき) 最小値 -15 ($x = -6$ のとき)

③ (1) $x = 4$

(2)

x	2	3	4	5	6	7
y	-1	8	11	8	-1	-16

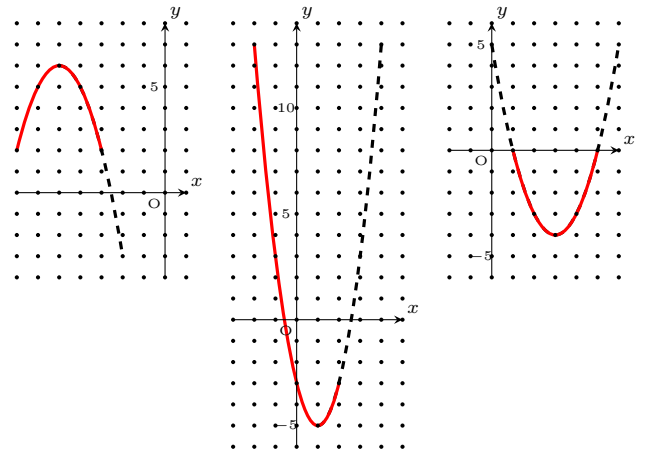
(3) 最大値 11 ($x = 4$ のとき) 最小値 -1 ($x = 6$ のとき)

④ (1) $x = -5$

(2)

x	-7	-6	-5	-4	-3	-2
y	2	5	6	5	2	-3

(3) 最大値 6 ($x = -5$ のとき) 最小値 2 ($x = -7, -3$ のとき)



⑤ (1) $x = 1$

(2)

x	-2	-1	0	1	2	3
y	13	3	-3	-5	-3	3

(3) 最大値 13 ($x = -2$ のとき) 最小値 -5 ($x = 1$ のとき)

⑥ (1) $x = 3$

(2)

x	0	1	2	3	4	5
y	5	0	-3	-4	-3	0

(3) 最大値 0 ($x = 1, 5$ のとき) 最小値 -4 ($x = 3$ のとき)

数学 I 授業プリント # 37 その 2

① (1) $x = 3, 1$ (2) $x = 2, -1$ (3) $x = 1, 4$ (4) $x = 3, 2$ (5) $x = \frac{1}{2}, -3$ (6) $x = 3, -4$ (7) $x = -\frac{2}{3}, -1$ (8) $x = -\frac{3}{2}, \frac{5}{3}$

② (1) $x = \frac{3 \pm \sqrt{5}}{2}$ (2) $x = \frac{3 \pm \sqrt{17}}{2}$ (3) $x = \frac{3 \pm \sqrt{41}}{4}$ (4) $x = \frac{1 \pm \sqrt{13}}{2}$ (5) $x = \frac{-3 \pm \sqrt{17}}{4}$ (6) $x = \frac{-5 \pm \sqrt{29}}{2}$ (7) $x = \frac{1 \pm \sqrt{37}}{6}$
 (8) $x = \frac{-1 \pm \sqrt{13}}{6}$

③ (1) $x = -\frac{1}{2}, -3$ (2) $x = -\frac{1}{2}, -1$ (3) $x = -\frac{4}{3}, 2$ (4) $x = \frac{5 \pm \sqrt{17}}{2}$ (5) $x = \frac{1}{3}, 2$ (6) $x = \frac{1}{6}, -\frac{1}{2}$ (7) $x = \frac{-5 \pm \sqrt{105}}{4}$
 (8) $x = \frac{1 \pm \sqrt{33}}{4}$ (9) $x = \frac{1 \pm \sqrt{17}}{4}$ (10) $x = -\frac{1}{2}, -2$ (11) $x = \frac{9 \pm \sqrt{101}}{10}$ (12) $x = 0, 3$ (13) $x = \frac{2}{3}, 3$ (14) $x = \frac{9 \pm \sqrt{21}}{6}$ (15) $x = \pm 2$
 (16) $x = \frac{3 \pm \sqrt{3}}{2}$

数学 I 授業プリント # 37 その 3

① (1) $x = 4, -5$ (2) $x = 7, 3$ (3) $x = -7, -2$ (4) $x = \frac{3}{2}, 2$

② (1) $x = \frac{-5 \pm \sqrt{13}}{6}$ (2) $x = \frac{-7 \pm \sqrt{13}}{6}$ (3) $x = \frac{-3 \pm \sqrt{29}}{2}$ (4) $x = \frac{-5 \pm \sqrt{61}}{6}$

③ (1) $x = \frac{1 \pm \sqrt{65}}{4}$ (2) $x = -9, -2$ (3) $x = -10, 9$ (4) $x = \frac{-7 \pm \sqrt{73}}{4}$ (5) $x = 8, 9$ (6) $x = 4, 6$

(7) $x = \frac{-7 \pm \sqrt{57}}{2}$ (8) $x = \frac{1}{4}, \frac{-2}{3}$ (9) $x = \frac{-3}{2}, \frac{-4}{3}$ (10) $x = -5, 3$ (11) $x = \frac{-4}{3}, 2$ (12) $x = \frac{1 \pm \sqrt{113}}{14}$ (13) $x = \pm 2\sqrt{3}$

(14) $x = \frac{2 \pm \sqrt{3}}{2}$ (15) $x = 0, \frac{1}{2}$ (16) $x = 2 \pm \sqrt{2}$

数学 I 授業プリント # 38

① (1) $x = -3, -1$ (2) $x = 1, 2$ (3) $x = -5, 2$ (4) $x = 0, -1$

② (1) $x < 1, 4 < x$ (2) $1 < x < 4$ (3) $x < 2, 3 < x$ (4) $2 < x < 3$

③ (1) $x < -2, 1 < x$ (2) $-4 < x < 3$ (3) $-2 < x < 2$ (4) $x < 0, 3 < x$ (5) $x < -2, \frac{1}{3} < x$ (6) $-1 < x < 7$

数学 I 授業プリント # 38 (その 2)

- ① (1) $x = -3, -1$ (2) $x = 1, 2$ (3) $x = -5, 2$ (4) $x = 0, -1$
 ② (1) $x = \frac{3 \pm \sqrt{5}}{2}$ (2) $x = \frac{3 \pm \sqrt{17}}{2}$ (3) $x = \frac{3 \pm \sqrt{41}}{4}$ (4) $x = \frac{1 \pm \sqrt{13}}{2}$
 ③ (1) $x = -\frac{1}{2}, -3$ (2) $x = -\frac{1}{2}, -1$ (3) $x = -\frac{4}{3}, 2$ (4) $x = \frac{5 \pm \sqrt{17}}{2}$ (5) $x = \frac{1}{3}, 2$ (6) $x = \frac{1}{6}, -\frac{1}{2}$ (7) $x = \frac{-5 \pm \sqrt{105}}{4}$
 (8) $x = \frac{1 \pm \sqrt{33}}{4}$ (9) $x = \frac{1 \pm \sqrt{17}}{4}$ (10) $x = -\frac{1}{2}, -2$ (11) $x = \frac{9 \pm \sqrt{101}}{10}$ (12) $x = 0, 3$ (13) $x = \frac{2}{3}, 3$ (14) $x = \frac{9 \pm \sqrt{21}}{6}$ (15) $x = \pm 2$
 (16) $x = \frac{3 \pm \sqrt{3}}{2}$

数学 I 授業プリント # 39

- ① (1) $x < \frac{-3 - \sqrt{5}}{2}, \frac{-3 + \sqrt{5}}{2} < x$ (2) $\frac{-3 - \sqrt{41}}{4} < x < \frac{-3 + \sqrt{41}}{4}$ (3) $\frac{2 - \sqrt{6}}{2} \leq x \leq \frac{2 + \sqrt{6}}{2}$
 (4) $x \leq -3 - 2\sqrt{2}, -3 + 2\sqrt{2} \leq x$ (5) $\frac{9 - \sqrt{101}}{10} < x < \frac{9 + \sqrt{101}}{10}$ (6) $x \leq \frac{1 - \sqrt{13}}{2}, \frac{1 + \sqrt{13}}{2} \leq x$
 (7) $\frac{-3 - \sqrt{17}}{4} \leq x \leq \frac{-3 + \sqrt{17}}{4}$ (8) $\frac{-5 - \sqrt{29}}{2} \leq x \leq \frac{-5 + \sqrt{29}}{2}$ (9) $\frac{1 - \sqrt{37}}{6} < x < \frac{1 + \sqrt{37}}{6}$ (10) $\frac{-1 - \sqrt{13}}{6} < x < \frac{-1 + \sqrt{13}}{6}$
 (11) $x < \frac{-5 - \sqrt{17}}{4}, \frac{-5 + \sqrt{17}}{4} < x$ (12) $\frac{3 - \sqrt{5}}{2} \leq x \leq \frac{3 + \sqrt{5}}{2}$
 ② (1) $x \leq \frac{1 - \sqrt{13}}{3}, \frac{1 + \sqrt{13}}{3} \leq x$ (2) $x < \frac{3 - 2\sqrt{3}}{3}, \frac{3 + 2\sqrt{3}}{3} < x$

数学 I 授業プリント # 40

- ① (1) $x < \frac{5 - \sqrt{17}}{2}, \frac{5 + \sqrt{17}}{2} < x$ (2) $\frac{-5 - \sqrt{61}}{6} < x < \frac{-5 + \sqrt{61}}{6}$ (3) $\frac{1 - \sqrt{17}}{4} \leq x \leq \frac{1 + \sqrt{17}}{4}$
 (4) $x \leq \frac{1 - \sqrt{113}}{14}, \frac{1 + \sqrt{113}}{14} \leq x$
 ② (1) $-\frac{3}{2} < x < 1$ (2) $x < \frac{3}{2}, 2 < x$ (3) $x < -\frac{1}{2}, -\frac{1}{3} < x$ (4) $-\frac{1}{2} \leq x \leq \frac{4}{3}$
 ③ (1) $\frac{-7 - \sqrt{73}}{4} < x < \frac{-7 + \sqrt{73}}{4}$ (2) $-\frac{3}{2} < x < \frac{5}{3}$ (3) $x < \frac{3 - \sqrt{5}}{2}, \frac{3 + \sqrt{5}}{2} < x$ (4) $-1 \leq x \leq -\frac{1}{2}$
 (5) $x < \frac{-7 - \sqrt{57}}{2}, \frac{-7 + \sqrt{57}}{2} < x$ (6) $-\frac{3}{2} < x < 0$
 ④ (1) $x \leq \frac{-1 - \sqrt{11}}{2}, \frac{-1 + \sqrt{11}}{2} \leq x$ (2) $2 - \sqrt{5} < x < 2 + \sqrt{5}$

数学 I 授業プリント # 41

- ① (1) $x < \frac{3 - \sqrt{5}}{2}, \frac{3 + \sqrt{5}}{2} < x$ (2) $\frac{-5 - \sqrt{21}}{2} < x < \frac{-5 + \sqrt{21}}{2}$ (3) $-1 \leq x \leq -\frac{2}{3}$ (4) $x \leq -\frac{1}{2}, \frac{1}{6} \leq x$
 (5) $\frac{-5 - \sqrt{105}}{4} < x < \frac{-5 + \sqrt{105}}{4}$ (6) $x \leq -2, -\frac{1}{2} \leq x$ (7) $\frac{1 - \sqrt{33}}{4} \leq x \leq \frac{1 + \sqrt{33}}{4}$ (8) $\frac{9 - \sqrt{21}}{6} \leq x \leq \frac{9 + \sqrt{21}}{6}$ (9) $x < -4, \frac{2}{3} < x$
 (10) $\frac{1}{2} < x < \frac{7}{4}$ (11) $x < \frac{-3 - \sqrt{29}}{2}, \frac{-3 + \sqrt{29}}{2} < x$ (12) $\frac{9 - \sqrt{101}}{10} \leq x \leq \frac{9 + \sqrt{101}}{10}$ (13) $\frac{1 - \sqrt{37}}{6} < x < \frac{1 + \sqrt{37}}{6}$ (14) $x < -\frac{5}{3}, -\frac{3}{2} < x$
 (15) $x < -2\sqrt{3}, 2\sqrt{3} < x$ (16) $x \leq 0, \frac{2}{3} \leq x$ (17) $1 - \sqrt{2} \leq x \leq 1 + \sqrt{2}$ (18) $2 - \sqrt{5} < x < 2 + \sqrt{5}$ (19) $x \leq -1, 7 \leq x$
 (20) $-5 - \sqrt{29} \leq x \leq -5 + \sqrt{29}$

数学 I 授業プリント # 41 (その 2)

- ① (1) $x < \frac{3 - \sqrt{5}}{2}, \frac{3 + \sqrt{5}}{2} < x$ (2) $\frac{-5 - \sqrt{21}}{2} < x < \frac{-5 + \sqrt{21}}{2}$ (3) $1 \leq x \leq 2$ (4) $x \leq -2, 6 \leq x$ (5) $\frac{-5 - \sqrt{105}}{4} < x < \frac{-5 + \sqrt{105}}{4}$
 (6) $x \leq -5, 6 \leq x$ (7) $\frac{1 - \sqrt{33}}{4} \leq x \leq \frac{1 + \sqrt{33}}{4}$ (8) $\frac{9 - \sqrt{21}}{6} \leq x \leq \frac{9 + \sqrt{21}}{6}$ (9) $x < -8, -3 < x$ (10) $3 < x < 4$
 (11) $x < \frac{-3 - \sqrt{29}}{2}, \frac{-3 + \sqrt{29}}{2} < x$ (12) $\frac{9 - \sqrt{101}}{10} \leq x \leq \frac{9 + \sqrt{101}}{10}$ (13) $\frac{1 - \sqrt{37}}{6} < x < \frac{1 + \sqrt{37}}{6}$ (14) $x < -\frac{5}{3}, -\frac{3}{2} < x$
 (15) $x < -2\sqrt{3}, 2\sqrt{3} < x$ (16) $x \leq 0, \frac{2}{3} \leq x$ (17) $1 - \sqrt{2} \leq x \leq 1 + \sqrt{2}$ (18) $2 - \sqrt{5} < x < 2 + \sqrt{5}$ (19) $x \leq -1, 7 \leq x$
 (20) $-5 - \sqrt{29} \leq x \leq -5 + \sqrt{29}$

数学 I 授業プリント # 42

- ① (1) $x < \frac{-3 - \sqrt{5}}{2}, \frac{-3 + \sqrt{5}}{2} < x$ (2) $\frac{1 - \sqrt{13}}{2} < x < \frac{1 + \sqrt{13}}{2}$ (3) $-\frac{3}{2} \leq x \leq 1$ (4) $x \leq \frac{1 - \sqrt{17}}{4}, \frac{1 + \sqrt{17}}{4} \leq x$ (5) $\frac{3}{2} < x < 2$
 (6) $x \leq -1, -\frac{2}{3} \leq x$ (7) $\frac{-5 - \sqrt{61}}{6} \leq x \leq \frac{-5 + \sqrt{61}}{6}$ (8) $x \leq -\frac{1}{2}, \frac{4}{3} \leq x$ (9) $-1 \leq x \leq -\frac{1}{2}$ (10) $\frac{-7 - \sqrt{57}}{2} \leq x \leq \frac{-7 + \sqrt{57}}{2}$
 (11) $x < \frac{-3 - \sqrt{29}}{2}, \frac{-3 + \sqrt{29}}{2} < x$ (12) $-\frac{3}{2} < x < \frac{5}{3}$ (13) $-\frac{1}{2} < x < -\frac{1}{3}$ (14) $x \leq \frac{1 - \sqrt{37}}{6}, \frac{1 + \sqrt{37}}{6} \leq x$

数学 I 授業プリント # 43

- ① (1) $\tan A = \frac{5}{12}, \tan B = \frac{12}{5}$ (2) $\tan A = \frac{3}{\sqrt{7}}, \tan B = \frac{\sqrt{7}}{3}$ (3) $\tan A = \frac{5}{2}, \tan B = \frac{2}{5}$
 (4) $\tan A = \frac{6}{7}, \tan B = \frac{7}{6}$ (5) $\tan A = \frac{24}{7}, \tan B = \frac{7}{24}$ (6) $\tan A = \frac{\sqrt{5}}{2}, \tan B = \frac{2}{\sqrt{5}}$
 ② $\tan 30^\circ = \frac{1}{\sqrt{3}}, \tan 45^\circ = 1, \tan 60^\circ = \sqrt{3}$
 ③ (1) $x = \sqrt{21}$ (2) $\tan A = \frac{2}{\sqrt{21}}$
 ④ (1) $x = \sqrt{7}$ (2) $\tan A = \frac{\sqrt{7}}{3}$

数学 I 授業プリント # 44 小数 4 桁の計算が難しければ小数 3 桁までで良いかも

- ① (1) $\tan A = \frac{3}{7}$ (2) $\tan A = \frac{3}{4}$ (3) $\tan A = \frac{7}{24}$ (4) $\tan A = \frac{\sqrt{21}}{2}$ (5) $\tan A = \frac{4}{\sqrt{33}}$ (6) $\tan A = \frac{3}{2}$

② $\tan 20^\circ = 0.3640, \tan 36^\circ = 0.7265, \tan 83^\circ = 8.1443$

③ (1) $x = 5.317 \approx 5.3$ (2) $x = 8.5686 \approx 8.6$

数学 I 授業プリント # 45

① (1) $\tan A = \frac{3}{4}$ (2) $\tan A = \frac{7}{24}$ (3) $\tan A = \frac{1}{2\sqrt{2}}$ (4) $\tan A = \frac{3}{\sqrt{7}}$ (5) $\tan A = \frac{\sqrt{5}}{2}$ (6) $\tan A = \frac{1}{\sqrt{15}}$ (7) $\tan A = \frac{6}{5}$
 (8) $\tan A = \frac{5}{12}$

② $\tan 30^\circ = \frac{1}{\sqrt{3}}, \tan 45^\circ = 1, \tan 60^\circ = \sqrt{3}$

③ (1) $\tan 14^\circ = 0.2493$ (2) $\tan 72^\circ = 3.0777$ (3) $\tan 52^\circ = 1.2799$ (4) $\tan 18^\circ = 0.3249$

④ (1) $x = 8.4024 \approx 8.4$ (2) $x = 3.1245 \approx 3.1$ (3) $x = 10.3782 \approx 10.4$ (4) $x = 7.536 \approx 7.5$

数学 I 授業プリント # 46

① (1) $\sin A = \frac{3}{5}, \cos A = \frac{4}{5}, \tan A = \frac{3}{4}$ (2) $\sin A = \frac{5}{13}, \cos A = \frac{12}{13}, \tan A = \frac{5}{12}$
 (3) $\sin A = \frac{2}{\sqrt{13}}, \cos A = \frac{3}{\sqrt{13}}, \tan A = \frac{2}{3}$ (4) $\sin A = \frac{1}{3}, \cos A = \frac{2\sqrt{2}}{3}, \tan A = \frac{1}{2\sqrt{2}}$

② $\sin 30^\circ = \frac{1}{2}, \sin 45^\circ = \frac{1}{\sqrt{2}}, \sin 60^\circ = \frac{\sqrt{3}}{2}$
 $\cos 30^\circ = \frac{\sqrt{3}}{2}, \cos 45^\circ = \frac{1}{\sqrt{2}}, \cos 60^\circ = \frac{1}{2}$
 $\tan 30^\circ = \frac{1}{\sqrt{3}}, \tan 45^\circ = 1, \tan 60^\circ = \sqrt{3}$

③ (1) $\sin 25^\circ = 0.4226$ (2) $\cos 50^\circ = 0.6428$ (3) $\cos 74^\circ = 0.2756$ (4) $\sin 18^\circ = 0.3090$ (5) $\cos 32^\circ = 0.8480$ (6) $\cos 7^\circ = 0.9925$ (7) $\sin 83^\circ = 0.9925$ (8) $\sin 58^\circ = 0.8480$

④ (1) $\sin A = \frac{\sqrt{5}}{3}, \cos A = \frac{2}{3}, \tan A = \frac{\sqrt{5}}{2}$ (2) $\sin A = \frac{3}{4}, \cos A = \frac{\sqrt{7}}{4}, \tan A = \frac{3}{\sqrt{7}}$
 (3) $\sin A = \frac{1}{\sqrt{5}}, \cos A = \frac{2}{\sqrt{5}}, \tan A = \frac{1}{2}$

数学 I 授業プリント # 47

① (1) $\sin A = \frac{5}{13}, \cos A = \frac{12}{13}, \tan A = \frac{5}{12}$ (2) $\sin A = \frac{3}{4}, \cos A = \frac{\sqrt{7}}{4}, \tan A = \frac{3}{\sqrt{7}}$
 (3) $\sin A = \frac{24}{25}, \cos A = \frac{7}{25}, \tan A = \frac{24}{7}$ (4) $\sin A = \frac{\sqrt{5}}{3}, \cos A = \frac{2}{3}, \tan A = \frac{\sqrt{5}}{2}$

② $\sin 30^\circ = \frac{1}{2}, \sin 45^\circ = \frac{1}{\sqrt{2}}, \sin 60^\circ = \frac{\sqrt{3}}{2}$
 $\cos 30^\circ = \frac{\sqrt{3}}{2}, \cos 45^\circ = \frac{1}{\sqrt{2}}, \cos 60^\circ = \frac{1}{2}$
 $\tan 30^\circ = \frac{1}{\sqrt{3}}, \tan 45^\circ = 1, \tan 60^\circ = \sqrt{3}$

③ (1) $\sin 2^\circ = 0.0349$ (2) $\sin 61^\circ = 0.8746$ (3) $\cos 88^\circ = 0.0349$ (4) $\cos 35^\circ = 0.8192$ (5) $\cos 17^\circ = 0.9563$ (6) $\cos 31^\circ = 0.8572$ (7) $\sin 59^\circ = 0.8572$ (8) $\sin 73^\circ = 0.9563$

④ (1) $\sin A = \frac{5}{\sqrt{34}}, \cos A = \frac{3}{\sqrt{34}}, \tan A = \frac{5}{3}$ (2) $\sin A = \frac{1}{4}, \cos A = \frac{\sqrt{15}}{4}, \tan A = \frac{1}{\sqrt{15}}$
 (3) $\sin A = \frac{5}{\sqrt{29}}, \cos A = \frac{2}{\sqrt{29}}, \tan A = \frac{5}{2}$ (4) $\sin A = \frac{5}{\sqrt{41}}, \cos A = \frac{4}{\sqrt{41}}, \tan A = \frac{5}{4}$

数学 I 授業プリント # 48

① (1) $\sin A = \frac{\sqrt{2}}{\sqrt{3}}, \cos A = \frac{1}{\sqrt{3}}, \tan A = \sqrt{2}$ (2) $\sin A = \frac{1}{\sqrt{5}}, \cos A = \frac{2}{\sqrt{5}}, \tan A = \frac{1}{2}$
 (3) $\sin A = \frac{2}{5}, \cos A = \frac{\sqrt{21}}{5}, \tan A = \frac{2}{\sqrt{21}}$ (4) $\sin A = \frac{1}{5\sqrt{2}}, \cos A = \frac{7}{5\sqrt{2}}, \tan A = \frac{1}{7}$

② $\tan 30^\circ = \frac{1}{\sqrt{3}}, \sin 60^\circ = \frac{\sqrt{3}}{2}, \cos 45^\circ = \frac{1}{\sqrt{2}}, \sin 30^\circ = \frac{1}{2}$

③ (1) $x = 4.9152 \approx 4.9, y = 3.4416 \approx 3.4$ (2) $x = 8.5599 \approx 8.6, y = 2.781 \approx 2.8$
 (3) $x = 7.7136 \approx 7.7, y = 9.182 \approx 9.2$ (4) $x = 9.2355 \approx 9.2, y = 11.82 \approx 11.8$

数学 I 授業プリント # 49

① (1) $\sin A = \frac{3}{4}, \cos A = \frac{\sqrt{7}}{4}, \tan A = \frac{3}{\sqrt{7}}$ (2) $\sin A = \frac{5}{\sqrt{34}}, \cos A = \frac{3}{\sqrt{34}}, \tan A = \frac{5}{3}$
 (3) $\sin A = \frac{5}{13}, \cos A = \frac{12}{13}, \tan A = \frac{5}{12}$ (4) $\sin A = \frac{\sqrt{5}}{3}, \cos A = \frac{2}{3}, \tan A = \frac{\sqrt{5}}{2}$
 (5) $\sin A = \frac{5}{\sqrt{61}}, \cos A = \frac{6}{\sqrt{61}}, \tan A = \frac{5}{6}$ (6) $\sin A = \frac{\sqrt{3}}{2}, \cos A = \frac{1}{2}, \tan A = \sqrt{3}$

② (1) $x = 1.0948 \approx 1.1$ (2) $x = 6.8576 \approx 6.9$ (3) $x = 4.373 \approx 4.4$ (4) $x = 1.7008 \approx 1.7$ (5) $x = 5.0346 \approx 5.0$
 (6) $x = 7.092 \approx 7.1$ (7) $x = 4.6025 \approx 4.6$ (8) $x = 7.94 \approx 7.9$ (9) $x = 18.65 \approx 18.7$ (10) $x = 4.104 \approx 4.1$

数学 I 授業プリント # 49 (その2)

① (1) 39° , (2) 73° ② (1) 23° , (2) 68° , (3) 23° , (4) 56° ③ (1) 12° , (2) 46° , (3) 49° , (4) 84°

④ (1) 37° , (2) 48° , (3) 23° , (4) 15°

数学 I 授業プリント # 50

□ (1) $\cos A = \frac{\sqrt{7}}{4}$, $\tan A = \frac{3}{\sqrt{7}}$ (2) $\cos A = \frac{\sqrt{11}}{6}$, $\tan A = \frac{5}{\sqrt{11}}$ (3) $\sin A = \frac{\sqrt{5}}{3}$, $\tan A = \frac{\sqrt{5}}{2}$
 (4) $\sin A = \frac{2}{\sqrt{13}}$, $\cos A = \frac{3}{\sqrt{13}}$ (5) $\sin A = \frac{3}{\sqrt{13}}$, $\tan A = \frac{3}{2}$ (6) $\cos A = \frac{5}{\sqrt{29}}$, $\tan A = \frac{2}{5}$

数学 I 授業プリント # 51

□ (1) $\sin A = \frac{\sqrt{11}}{4}$, $\tan A = \frac{\sqrt{11}}{\sqrt{5}}$ (2) $\cos A = \frac{\sqrt{7}}{\sqrt{11}}$, $\tan A = \frac{2}{\sqrt{7}}$ (3) $\sin A = \frac{\sqrt{2}}{\sqrt{3}}$, $\cos A = \frac{1}{\sqrt{3}}$
 (4) $\sin A = \frac{3}{5}$, $\tan A = \frac{3}{4}$ (5) $\cos A = \frac{\sqrt{7}}{5}$, $\tan A = \frac{3\sqrt{2}}{\sqrt{7}}$ (6) $\sin A = \frac{4}{\sqrt{41}}$, $\cos A = \frac{5}{\sqrt{41}}$
 (7) $\sin A = \frac{\sqrt{19}}{5}$, $\tan A = \frac{\sqrt{19}}{\sqrt{6}}$ (8) $\sin A = \frac{7}{5\sqrt{2}}$, $\cos A = \frac{1}{5\sqrt{2}}$

数学 I 授業プリント # 52

□ (1) $\frac{21}{2}$ (2) $\frac{5}{2}$ (3) $20\sqrt{2}$ (4) $4\sqrt{2}$ (5) $\frac{3}{2}$ (6) 3 (7) $\frac{27}{2}$ (8) $7\sqrt{2}$

数学 I 授業プリント # 53

$\sin 30^\circ = \frac{1}{2}$, $\sin 45^\circ = \frac{1}{\sqrt{2}}$, $\sin 60^\circ = \frac{\sqrt{3}}{2}$

□ (1) $9\sqrt{2}$ (2) $3\sqrt{3}$ (3) 10 (4) $5\sqrt{3}$ (5) 6 (6) $\frac{3\sqrt{2}}{4}$ (7) 5 (8) 15 (9) 24

数学 I 授業プリント # 54

□ (1) $2\sqrt{6}$ (2) $5\sqrt{2}$ (3) $3\sqrt{2}$ (4) $\sqrt{6}$ (5) $2\sqrt{6}$ (6) $\sqrt{10}$ (7) $\frac{3\sqrt{2}}{2}$ (8) $3\sqrt{6}$

数学 I 授業プリント # 55

$\sin 30^\circ = \frac{1}{2}$, $\sin 45^\circ = \frac{1}{\sqrt{2}}$, $\sin 60^\circ = \frac{\sqrt{3}}{2}$

□ (1) $6\sqrt{2}$ (2) $2\sqrt{6}$ (3) $\frac{3\sqrt{6}}{2}$ (4) $\sqrt{6}$ (5) $\frac{7\sqrt{6}}{3}$ (6) $\frac{\sqrt{30}}{2}$ (7) $\sqrt{3}$ (8) $2\sqrt{5}$

数学 I 授業プリント # 55 (その2) ヘロンの公式

□ (1) 5 (2) 14 (3) $2\sqrt{2}$ (4) $\frac{8\sqrt{3}}{3}$

□ (1) $4\sqrt{6}$ (2) $\sqrt{30}$ (3) 84 (4) $2\sqrt{15}$

数学 I 授業プリント # 55 (その2)

□ (1) 7 (2) 5 (3) $2\sqrt{3}$ (4) $5\sqrt{2}$ (5) $2\sqrt{2}$ (6) $\frac{8\sqrt{3}}{3}$

数学 I 授業プリント # 55 (その2) 改

$\sin 30^\circ = \frac{1}{2}$, $\sin 45^\circ = \frac{1}{\sqrt{2}}$, $\sin 60^\circ = \frac{\sqrt{3}}{2}$

$\cos 30^\circ = \frac{\sqrt{3}}{2}$, $\cos 45^\circ = \frac{1}{\sqrt{2}}$, $\cos 60^\circ = \frac{1}{2}$

$\tan 30^\circ = \frac{1}{\sqrt{3}}$, $\tan 45^\circ = 1$, $\tan 60^\circ = \sqrt{3}$

□ (1) 5 (2) $5\sqrt{2}$ (3) $2\sqrt{2}$ (4) $\frac{8\sqrt{3}}{3}$ (5) 7 (6) 5 (7) 1 (8) $\sqrt{3}$

数学 I 授業プリント # 56

$\sin 30^\circ = \frac{1}{2}$, $\sin 45^\circ = \frac{1}{\sqrt{2}}$, $\sin 60^\circ = \frac{\sqrt{3}}{2}$

$\cos 30^\circ = \frac{\sqrt{3}}{2}$, $\cos 45^\circ = \frac{1}{\sqrt{2}}$, $\cos 60^\circ = \frac{1}{2}$

$\tan 30^\circ = \frac{1}{\sqrt{3}}$, $\tan 45^\circ = 1$, $\tan 60^\circ = \sqrt{3}$

$\sin 120^\circ = \frac{\sqrt{3}}{2}$, $\cos 120^\circ = \frac{-1}{2}$, $\tan 120^\circ = -\sqrt{3}$

$\sin 135^\circ = \frac{1}{\sqrt{2}}$, $\cos 135^\circ = \frac{-1}{\sqrt{2}}$, $\tan 135^\circ = -1$

$\sin 150^\circ = \frac{1}{2}$, $\cos 150^\circ = \frac{-\sqrt{3}}{2}$, $\tan 150^\circ = \frac{1}{-\sqrt{3}}$

数学 I 授業プリント # 57

$\sin 30^\circ = \frac{1}{2}$, $\sin 45^\circ = \frac{1}{\sqrt{2}}$, $\sin 60^\circ = \frac{\sqrt{3}}{2}$

$\cos 30^\circ = \frac{\sqrt{3}}{2}$, $\cos 45^\circ = \frac{1}{\sqrt{2}}$, $\cos 60^\circ = \frac{1}{2}$

$\tan 30^\circ = \frac{1}{\sqrt{3}}$, $\tan 45^\circ = 1$, $\tan 60^\circ = \sqrt{3}$

$\sin 120^\circ = \frac{\sqrt{3}}{2}$, $\cos 120^\circ = \frac{-1}{2}$, $\tan 120^\circ = -\sqrt{3}$

$\sin 135^\circ = \frac{1}{\sqrt{2}}$, $\cos 135^\circ = \frac{-1}{\sqrt{2}}$, $\tan 135^\circ = -1$

$\sin 150^\circ = \frac{1}{2}$, $\cos 150^\circ = \frac{-\sqrt{3}}{2}$, $\tan 150^\circ = \frac{1}{-\sqrt{3}}$

□ (1) $10\sqrt{3}$ (2) $2\sqrt{2}$ (3) $\sqrt{6}$ (4) $\sqrt{2}$ (5) $7\sqrt{2}$ (6) $4\sqrt{6}$

数学 I 授業プリント # 58

$\sin 30^\circ = \frac{1}{2}$, $\sin 45^\circ = \frac{1}{\sqrt{2}}$, $\sin 60^\circ = \frac{\sqrt{3}}{2}$

$\cos 30^\circ = \frac{\sqrt{3}}{2}$, $\cos 45^\circ = \frac{1}{\sqrt{2}}$, $\cos 60^\circ = \frac{1}{2}$

$\tan 30^\circ = \frac{1}{\sqrt{3}}$, $\tan 45^\circ = 1$, $\tan 60^\circ = \sqrt{3}$

$\sin 120^\circ = \frac{\sqrt{3}}{2}$, $\cos 120^\circ = \frac{-1}{2}$, $\tan 120^\circ = -\sqrt{3}$

$\sin 135^\circ = \frac{1}{\sqrt{2}}$, $\cos 135^\circ = \frac{-1}{\sqrt{2}}$, $\tan 135^\circ = -1$

$\sin 150^\circ = \frac{1}{2}$, $\cos 150^\circ = \frac{-\sqrt{3}}{2}$, $\tan 150^\circ = \frac{1}{-\sqrt{3}}$

- ① (1) $5\sqrt{2}$ (2) $12\sqrt{3}$ (3) $\frac{27}{2}$ (4) $51\sqrt{2}$ (5) $2\sqrt{3}$ (6) $6\sqrt{3}$ (7) 6 (8) $3\sqrt{2}$

数学 I 授業プリント # 58 (その 2)

- ① (1) $\cos \theta = \frac{-\sqrt{5}}{3}, \tan \theta = \frac{2}{-\sqrt{5}}$ (2) $\sin \theta = \frac{\sqrt{7}}{4}, \tan \theta = -\frac{\sqrt{7}}{3}$ (3) $\sin \theta = \frac{2\sqrt{2}}{3}, \tan \theta = -2\sqrt{2}$ (4) $\cos \theta = \frac{-4\sqrt{3}}{7}, \tan \theta = -\frac{1}{-4\sqrt{3}}$

数学 I 授業プリント # 59

- ① (1) $\sqrt{21}$ (2) $\sqrt{13}$ (3) $\sqrt{5}$ (4) 7 (5) $2\sqrt{3}$ (6) $\sqrt{19}$ (7) $3\sqrt{5}$ (8) $\sqrt{7}$ (9) $\sqrt{7}$ (10) $2\sqrt{7}$

数学 I 授業プリント # 60

- ① (1) $\sqrt{61}$ (2) 13 (3) $\sqrt{5}$ (4) $\sqrt{7}$ (5) $\sqrt{5}$ (6) $2\sqrt{21}$ (7) $\sqrt{7}$ (8) 7
 ② (1) 5 (2) 2

数学 I 授業プリント # 60 (その 2)

- ① (1) 60° (2) 60° (3) 45° (4) 60° (5) 135° (6) 120° (7) 120°

数学 I 授業プリント # 61

$$\begin{array}{ll} \sin 30^\circ = \frac{1}{2}, \sin 45^\circ = \frac{1}{\sqrt{2}}, \sin 60^\circ = \frac{\sqrt{3}}{2} & \sin 120^\circ = \frac{\sqrt{3}}{2}, \cos 120^\circ = -\frac{1}{2}, \tan 120^\circ = -\sqrt{3} \\ \cos 30^\circ = \frac{\sqrt{3}}{2}, \cos 45^\circ = \frac{1}{\sqrt{2}}, \cos 60^\circ = \frac{1}{2} & \sin 135^\circ = \frac{1}{\sqrt{2}}, \cos 135^\circ = -\frac{1}{\sqrt{2}}, \tan 135^\circ = -1 \\ \tan 30^\circ = \frac{1}{\sqrt{3}}, \tan 45^\circ = 1, \tan 60^\circ = \sqrt{3} & \sin 150^\circ = \frac{1}{2}, \cos 150^\circ = -\frac{\sqrt{3}}{2}, \tan 150^\circ = -\frac{1}{\sqrt{3}} \end{array}$$

- ① (1) $9\sqrt{2}$ (2) $3\sqrt{3}$ ② (1) $3\sqrt{2}$ (2) $\sqrt{6}$ ③ (1) $\sqrt{21}$ (2) $\sqrt{5}$
 ④ (1) $5\sqrt{2}$ (2) 6 ⑤ (1) 13 (2) $10\sqrt{3}$ (3) $\sqrt{5}$ (4) $\sqrt{6}$

数学 I 授業プリント # 62

- ① 64 cm^2 ② 250 cm^3 ③ 8 cm^2 ④ Q の体積 $16\pi \text{ cm}^3$, P の表面積 $45\pi \text{ cm}^2$
 ⑤ (1) Q の表面積 672, Q の体積 1152 (2) P の表面積 168, P の体積 144

数学 I 授業プリント # 63

- ① (1) 問題なし (2) 問題なし (3) 問題なし ② (1) 長さ $2\pi \text{ cm}$, 面積 $3\pi \text{ cm}^2$
 ③ 中心角は 144° となるので側面積は $40\pi \text{ cm}^2$

数学 I 授業プリント # 64

- ① (1) 72 cm^2 (2) $32\pi \text{ cm}^2$ (3) 79 cm^2 (4) $100\pi \text{ cm}^2$ (5) 132 cm^2 (6) $55\pi \text{ cm}^2$
 ② (1) 30 cm^3 (2) $24\pi \text{ cm}^3$ (3) 75 cm^3 (4) $96\pi \text{ cm}^3$ (5) 196 cm^3 (6) 40 cm^3
 ③ (1) 90° (2) $45\pi \text{ cm}^2$

数学 I 冬休み補習プリント # 1

- ① (1) 28 cm^2 (2) 25 cm^2 (3) 24 cm^2 (4) 9 cm^2 (5) 10 cm^2 (6) 3 cm^2 (7) 5 cm^2 (8) 15 cm^2 (9) $\frac{21}{2} \text{ cm}^2$
 ② (1) 面積 $4\pi \text{ cm}^2$, 円周 $4\pi \text{ cm}$ (2) 面積 $5\pi \text{ cm}^2$, 円周 $2\sqrt{5}\pi \text{ cm}$ (3) 面積 $63\pi \text{ cm}^2$, 円周 $6\sqrt{7}\pi \text{ cm}$
 ③ (1) 面積 $3\pi \text{ cm}^2$, 弧の長さ $2\pi \text{ cm}$ (2) 面積 $\frac{2\pi}{3} \text{ cm}^2$, 弧の長さ $\frac{2\pi}{3} \text{ cm}$ (3) 面積 $\frac{40\pi}{3} \text{ cm}^2$, 弧の長さ $\frac{20\pi}{3} \text{ cm}$
 ④ (1) 70 cm^3 (2) 45 cm^3 (3) $16\pi \text{ cm}^3$ (4) 18 cm^3 (5) $32\pi \text{ cm}^3$ (6) $\frac{245}{6} \text{ cm}^3$
 (7) 28 cm^3 (8) 12 cm^3 (9) $\frac{32\sqrt{5}\pi}{3} \text{ cm}^3$

数学 I 冬休み補習プリント # 2

- ① (1) 294 cm^2 (2) 343 cm^3 ② (1) 72 cm^2 (2) 30 cm^3 ③ (1) 96 cm^2 (2) 48 cm^3
 ④ (1) $80\pi \text{ cm}^2$ (2) $96\pi \text{ cm}^3$ ⑤ (1) 出題ミス (2) 196 cm^3 ⑥ (1) $48\pi \text{ cm}^2$ (2) $32\sqrt{3}\pi \text{ cm}^3$
 ⑦ (1) $2\sqrt{3} \text{ cm}$ (2) 正三角形 ABC の面積 $4\sqrt{3} \text{ cm}^2$ (≠) (3) 正三角柱の体積 $16\sqrt{3} \text{ cm}^3$
 ⑧ (1) $96\pi \text{ cm}^3$ (2) 10 cm (3) 216° (4) $96\pi \text{ cm}^2$

数学 I 冬休み補習プリント # 3

- ① (1) 360 cm^2 (2) 400 cm^3 (3) 90 cm^2 (4) 50 cm^3

- ② (1) $100\pi \text{ cm}^2$ (2) $125\pi \text{ cm}^3$ (3) $16\pi \text{ cm}^2$ (4) $8\pi \text{ cm}^3$
 ③ (1) 84 cm^2 (2) 36 cm^3 (3) 189 cm^2 (4) $\frac{243}{2} \text{ cm}^3$
 ④ (1) $12\pi \text{ cm}^2$ (2) $4\sqrt{3}\pi \text{ cm}^3$ (3) $27\pi \text{ cm}^2$ (4) $\frac{27\sqrt{3}\pi}{2} \text{ cm}^3$

数学 I 授業プリント # 65

- ① (1) 94cm^2 (2) $190\pi\text{cm}^2$ (3) 解答不能 (4) $9\sqrt{65} + 127\text{cm}^2$ (問題不適)
 ② (1) $\frac{175\pi}{3}\text{cm}^3$ (2) $96\pi\text{cm}^3$ (3) $\frac{200}{3}\text{cm}^3$ (4) 126cm^3
 ③ (1) 120° (2) $100\pi\text{cm}^2$

数学 I 授業プリント # 66

作問が間に合わなかった

数学 I 授業プリント # 67

- ① 表面積 $\frac{47}{2}\text{cm}^2$, 体積 $\frac{15}{2}\text{cm}^3$
 ② 表面積 $180\pi\text{cm}^2$, 体積 $324\pi\text{cm}^3$
 ③ 表面積 $\frac{28}{3}\text{cm}^2$, 体積 $\frac{4}{3}\text{cm}^3$
 ④ (1) 体積 $96\pi\text{cm}^3$ (2) 10cm (3) 216° (4) $96\pi\text{cm}^2$ (5) 表面積 $\frac{128\pi}{3}\text{cm}^2$, 体積 $\frac{256\pi}{3}\text{cm}^3$

数学 I 授業プリント # 68

- ① (1) 表面積 $4\pi\text{cm}^2$, 体積 $\frac{4\pi}{3}\text{cm}^3$ (2) 表面積 $16\pi\text{cm}^2$, 体積 $\frac{32\pi}{3}\text{cm}^3$ (3) 表面積 $100\pi\text{cm}^2$, 体積 $\frac{500\pi}{3}\text{cm}^3$
 (4) 表面積 $400\pi\text{cm}^2$, 体積 $\frac{4000\pi}{3}\text{cm}^3$ (5) 表面積 $12\pi\text{cm}^2$, 体積 $4\sqrt{3}\pi\text{cm}^3$ (6) 表面積 $112\pi\text{cm}^2$, 体積 $\frac{224\sqrt{7}\pi}{3}\text{cm}^3$
 ② $\frac{3}{2}\text{cm}$
 ③ 表面積 $200\pi\text{cm}^2$, 体積 $\frac{1000\sqrt{2}\pi}{3}\text{cm}^3$

数学 I 授業プリント # 69

- ① (1) 表面積 $36\pi \text{ cm}^2$, 体積 $36\pi \text{ cm}^3$ (2) 表面積 $144\pi \text{ cm}^2$, 体積 $288\pi \text{ cm}^3$ (3) 表面積 $24\pi \text{ cm}^2$, 体積 $8\sqrt{6}\pi \text{ cm}^3$ (4) 表面積 $32\pi \text{ cm}^2$, 体積 $\frac{64\sqrt{2}\pi}{3} \text{ cm}^3$
 ② (1) 表面積 $96\pi \text{ cm}^2$, 体積 $64\sqrt{6}\pi \text{ cm}^3$ (2) 表面積 $54\pi \text{ cm}^2$, 体積 $27\sqrt{6}\pi \text{ cm}^3$
 ③ 2 cm
 ④ $3\sqrt{2} \text{ cm}$

数学 I 授業プリント # 70

- ① (1) 表面積 $100\pi \text{ cm}^2$, 体積 $125\pi \text{ cm}^3$ (2) 表面積 $16\pi \text{ cm}^2$, 体積 $8\pi \text{ cm}^3$
 ② (1) 表面積 96 cm^2 , 体積 48 cm^3 (2) 表面積 216 cm^2 , 体積 162 cm^3
 ③ (1) 表面積 72 cm^2 , 体積 30 cm^3 (2) 表面積 128 cm^2 , 体積 $\frac{640}{9} \text{ cm}^3$
 ④ (1) 表面積 $36\pi \text{ cm}^2$, 体積 $36\pi \text{ cm}^3$ (2) 表面積 $20\pi \text{ cm}^2$, 体積 $20\sqrt{5}\pi \text{ cm}^3$ (3) 表面積 $72\pi \text{ cm}^2$, 体積 $72\sqrt{2}\pi \text{ cm}^3$
 ⑤ (1) 表面積 $36\pi \text{ cm}^2$, 体積 $4\sqrt{3}\pi \text{ cm}^3$ (2) 表面積 $81\pi \text{ cm}^2$, 体積 $\frac{27\sqrt{3}}{2}\pi \text{ cm}^3$

数学 I 授業プリント # 71

- ① (1) 21 cm^2 (2) 16 cm^2 (3) 35 cm^2 (4) 16 cm^2 (5) 12 cm^2 (6) $\frac{3}{2} \text{ cm}^2$ (7) 68 cm^2 (8) $\frac{49}{2} \text{ cm}^2$ (9) 45 cm^2
 ② (1) 面積 $9\pi \text{ cm}^2$, 弧の長さ $6\pi \text{ cm}$ (2) 面積 $7\pi \text{ cm}^2$, 弧の長さ $2\sqrt{7}\pi \text{ cm}$ (3) 面積 $8\pi \text{ cm}^2$, 弧の長さ $4\sqrt{2}\pi \text{ cm}$
 ③ (1) 343 cm^3 (2) 48 cm^3 (3) $96\pi \text{ cm}^3$ (4) $\frac{175}{3}\pi \text{ cm}^3$ (5) 126 cm^3 (6) 70 cm^3 (2013/7/31 訂正) (7) 28 cm^3 (8) 12 cm^3
 (9) cm^3 (10) cm^3
 ④ (1) 面積 $\frac{27}{8}\pi \text{ cm}^2$, 弧の長さ $\frac{9}{4}\pi \text{ cm}$ (2) 面積 $\pi \text{ cm}^2$, 弧の長さ $\pi \text{ cm}$ (3) 面積 $12\pi \text{ cm}^2$, 弧の長さ $6\pi \text{ cm}$

数学 I 授業プリント # 72

- ① (1) 96 cm^2 (2) 48 cm^3 (3) 216 cm^2 (4) 162 cm^2
 ② (1) $32\pi \text{ cm}^2$ (2) $24\pi \text{ cm}^3$ (3) $18\pi \text{ cm}^2$ (4) $\frac{81}{8}\pi \text{ cm}^2$
 ③ (1) $96\pi \text{ cm}^2$ (2) $64\sqrt{6}\pi \text{ cm}^3$ (3) $54\pi \text{ cm}^2$ (4) $27\sqrt{6}\pi \text{ cm}^2$
 ④ こんな立体は作成不能ですね (1) 79 cm^2 (2) 35 cm^3 (3) $\frac{316}{9} \text{ cm}^2$ (4) $\frac{280}{27} \text{ cm}^2$