

# 数学授業プリント 解答

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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 # 8

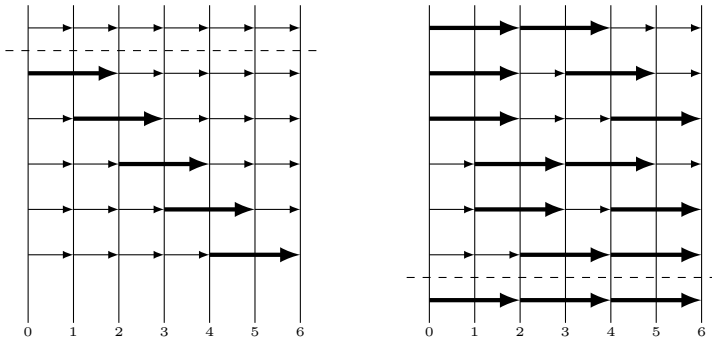
- ① (1)  $13x-13$  (2)  $7x^2-x+6$  (3)  $12x+2$  (4)  $5x^2-8x-4$  (5)  $-3x+5$  (6)  $-3x^2+14x+3$   
 ② (1)  $-7x^2+12x-2$  (2)  $2x^2-4$  (3)  $4x^2-13x+12$  (4)  $-8x^2-1$   
 ③ (1)  $14x^6$  (2)  $63x^9$  (3)  $27x^7y^3$  (4)  $-4x^3y^2$   
 ④ (1)  $x^2+12x+35$  (2)  $2x^2+11x+12$  (3)  $-7x^2-15x+18$  (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  $19 \times 4 = 68 + 25 = 93$

数学 I 授業プリント # 12

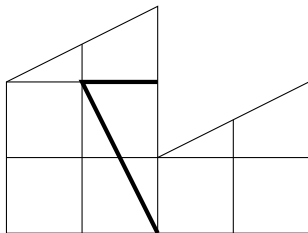
① (1)  $x = -3$  (2)  $x = 15$  (3)  $x = 4$  (4)  $x = 3$

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



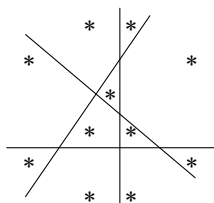
数学 I 授業プリント # 13

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)  $x = \frac{3 \pm 2\sqrt{3}}{3}$

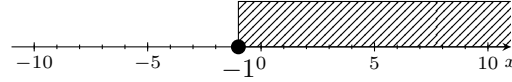
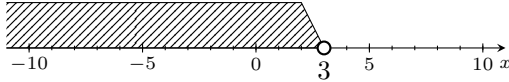
数学 I 授業プリント # 22

- 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)  $2x + 5 \leq 12$

- ② (1) (2)



- 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 # 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 # 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

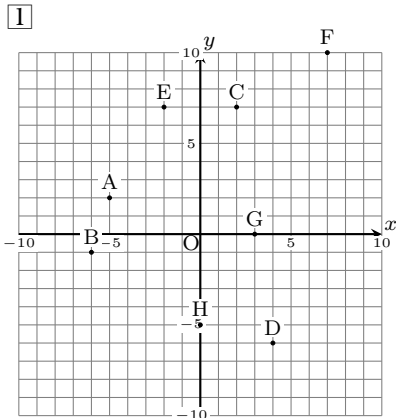
⑥ なし 21個, 柿 9個 (なし  $x$  個として  $200x + 80(30 - x) \leq 5000$  を解くと  $x \leq 21.66 \dots$ )

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 # 27



②

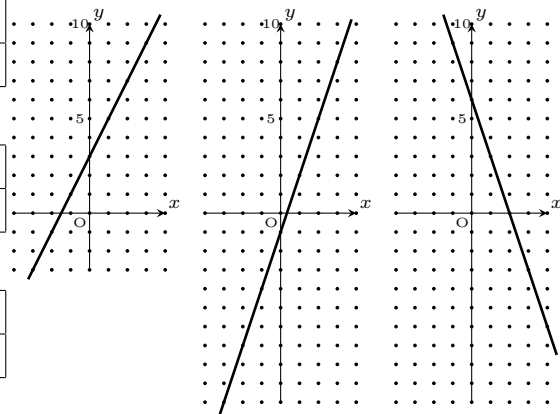
$x$	-2	-1	0	1	2	3
$y$	-1	1	3	5	7	9

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

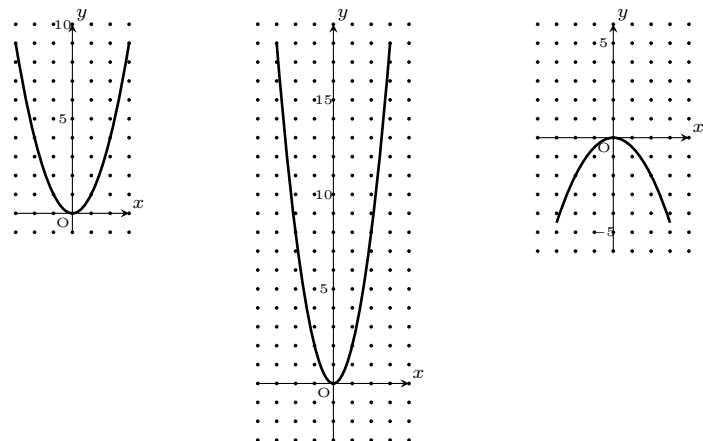
$x$	-3	-2	-1	0	1	2	3
$y$	9	4	1	0	1	4	9

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

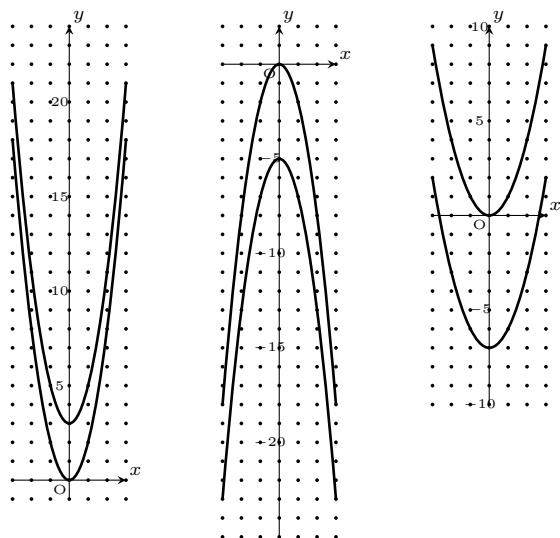
$x$	-3	-2	-1	0	1	2	3
$y = 2x^2$	18	8	2	0	2	8	18
$y = 2x^2 + 3$	21	11	5	3	5	11	21

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

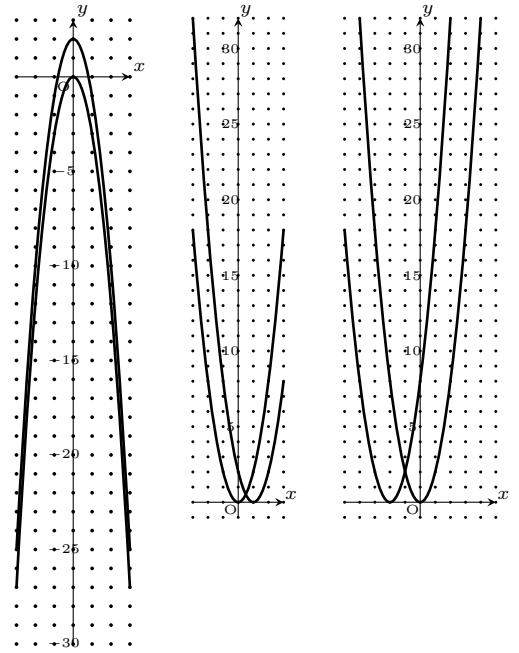
③

$x$	-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

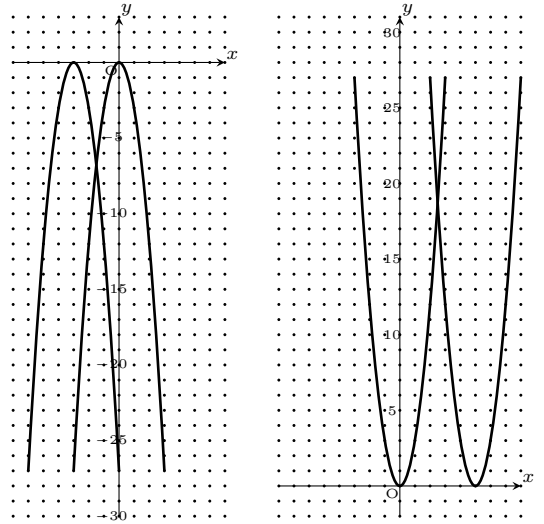
$x$	-3	-2	-1	0	1	2	3
$y = 2x^2$	18	8	2	0	2	8	18
$y = 2(x+2)^2$	2	0	2	8	18	32	50

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

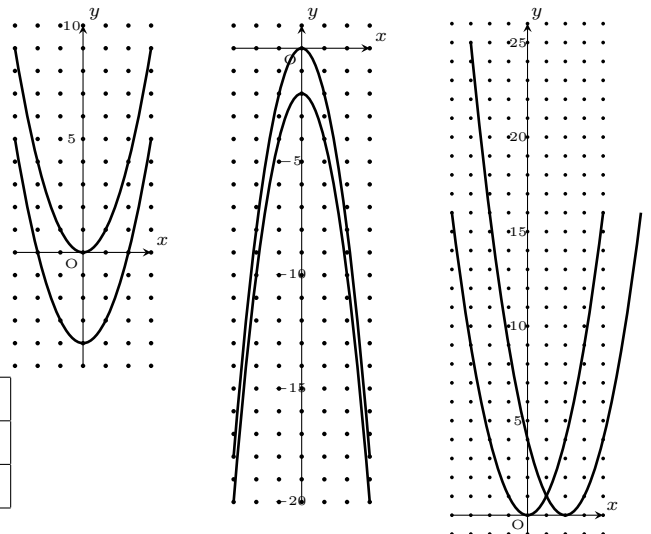
$x$	-3	-2	-1	0	1	2	3
$y = 3x^2$	27	12	3	0	3	12	27
$y = 3(x-5)^2$	192	147	108	75	48	27	12



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

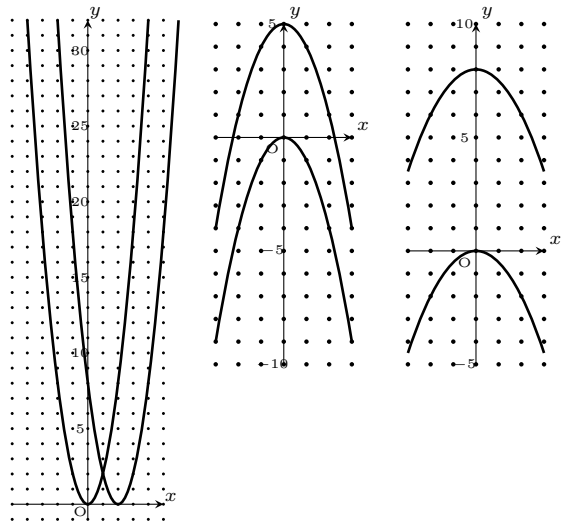
$x$	-3	-2	-1	0	1	2	3
$y = -2x^2$	-18	-8	-2	0	-2	-8	-18
$y = -2x^2 - 2$	-20	-10	-4	-2	-4	-10	-20

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

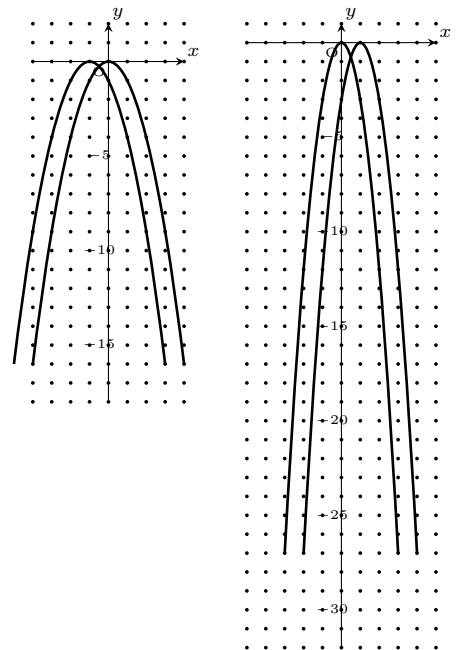
$x$	-3	-2	-1	0	1	2	3
$y = -x^2$	-9	-4	-1	0	-1	-4	-9
$y = -x^2 + 5$	-4	1	4	5	4	1	-4

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	$\frac{7}{2}$

7

$x$	-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



8

$x$	-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

1

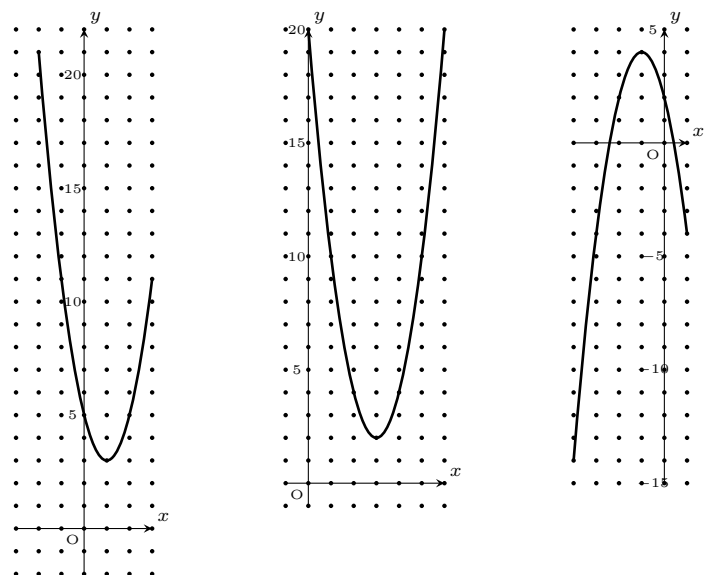
$x$	-2	-1	0	1	2	3
$y$	21	11	5	3	5	11

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  $x = -1$

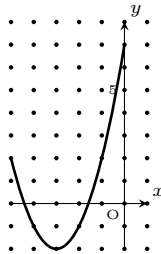
$x$	-4	-3	-2	-1	0	1
$y$	-14	-4	2	4	2	-4





- 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  $x = -2$

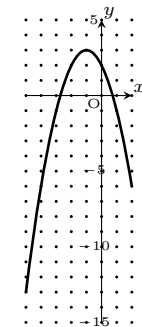
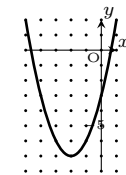
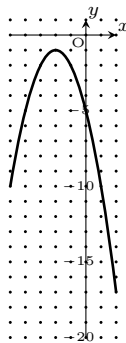
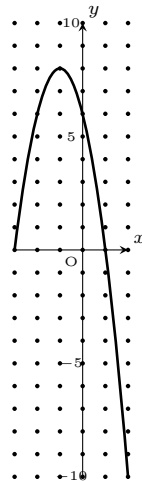
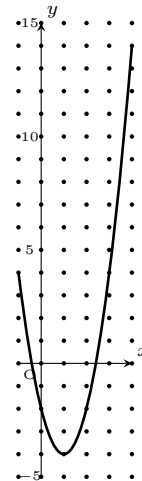
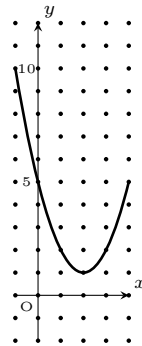
$x$	-5	-4	-3	-2	-1	0	1	2
$y$	-10	-5	-2	-1	-2	-5	-10	-17

- 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



数学 I 授業プリント # 32

①

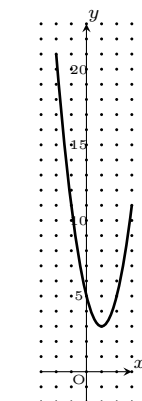
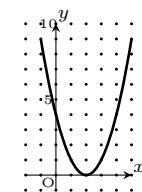
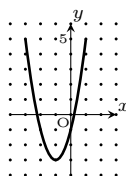
$x$	-3	-2	-1	0	1
$y$	5	-1	-3	-1	5

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

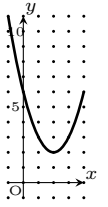
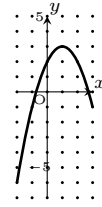
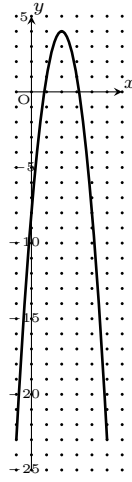
x	0	1	2	3	4	5
y	-8	1	4	1	-8	-23

5

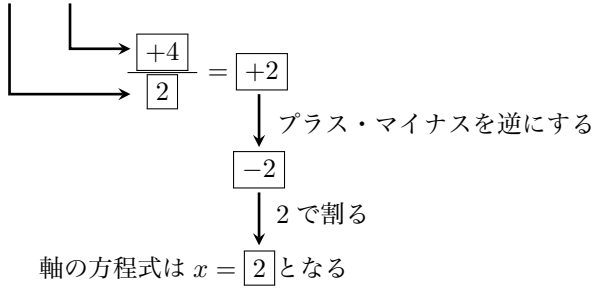
x	-2	-1	0	1	2	3
y	-6	-1	2	3	2	-1

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  $x = 1$

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

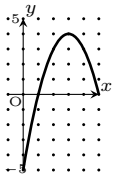
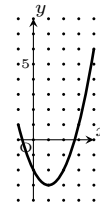
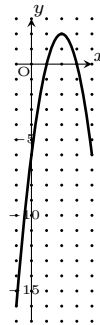
3  $y = -2x^2 - 12x + 7$  の軸の方程式は  $x = -3$

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

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  $x = 3$

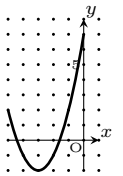
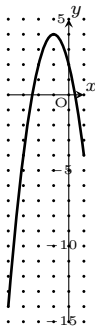
(2)

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

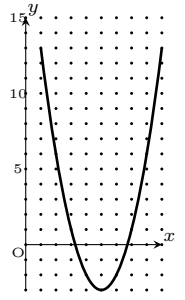
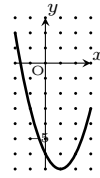
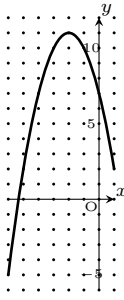
数学 I 授業プリント # 34

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

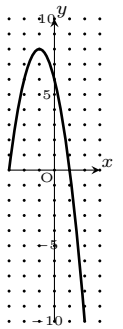
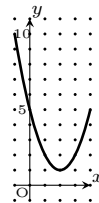
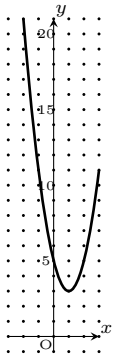
(3) 頂点  $(5, -3)$

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

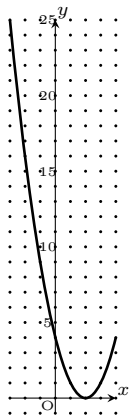
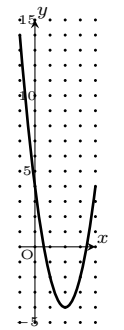
(3) 頂点  $(-1, 8)$

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

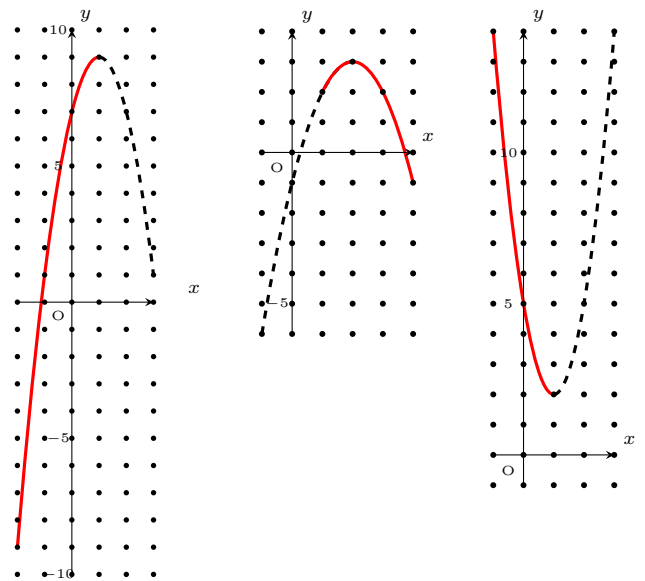
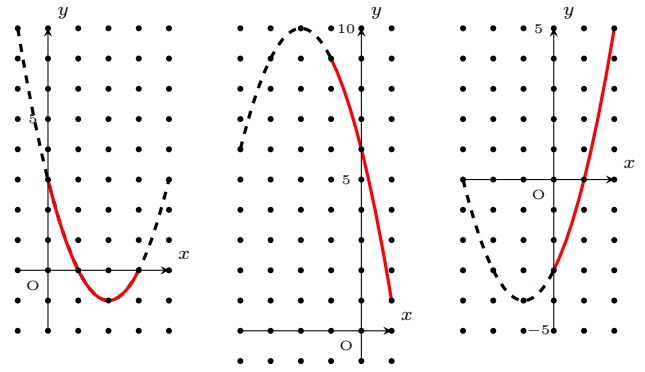
(3) 最大値 3 ( $x = 2$  のとき) 最小値 -1 ( $x = 4$  のとき)

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

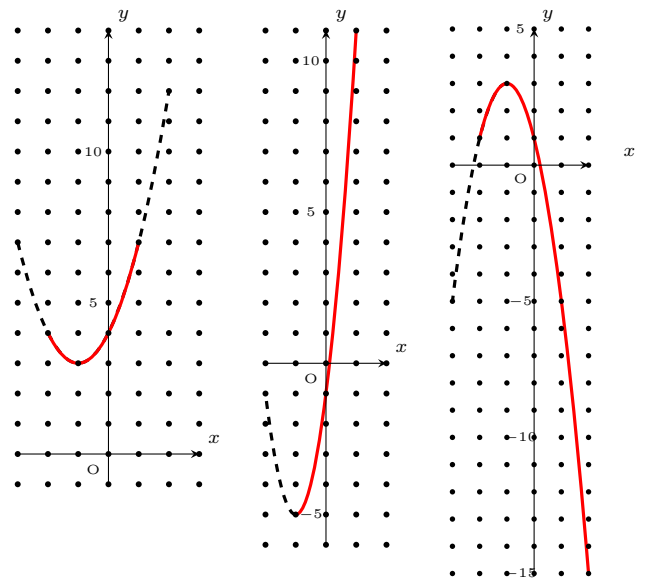
(3) 最大値 11 ( $x = 1$  のとき) 最小値 -5 ( $x = -1$  のとき)

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)

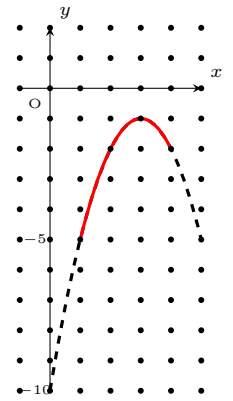
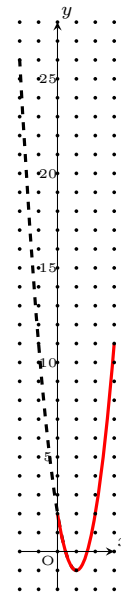
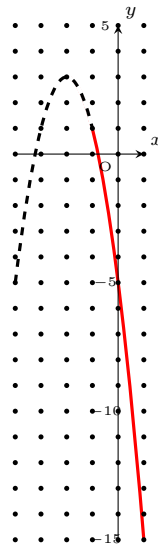


④ (1)  $x = -2$

(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)

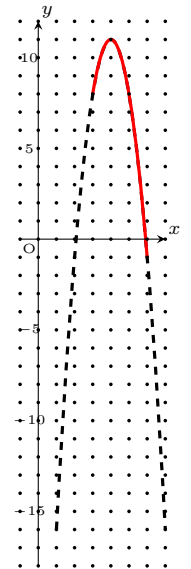
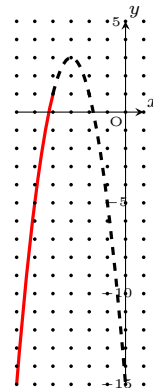
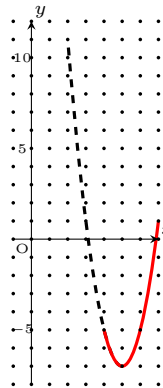
### 数学 I 授業プリント # 37

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

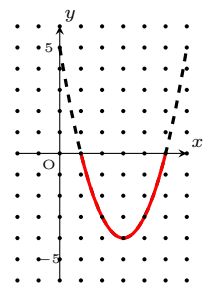
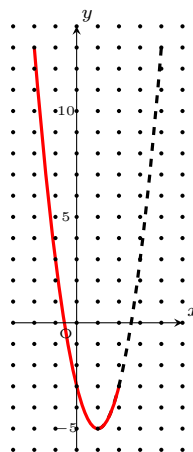
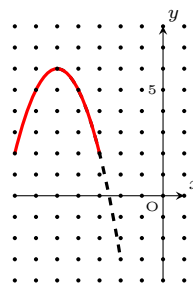
(3) 最大値 11 ( $x = 4$  のとき) 最小値 -1 ( $x = 6$  のとき)

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 # 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 # 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)  $39^\circ$ , (2)  $73^\circ$  ② (1)  $23^\circ$ , (2)  $68^\circ$ , (3)  $23^\circ$ , (4)  $56^\circ$  ③ (1)  $12^\circ$ , (2)  $46^\circ$ , (3)  $49^\circ$ , (4)  $84^\circ$

- ④ (1)  $37^\circ$ , (2)  $48^\circ$ , (3)  $23^\circ$ , (4)  $15^\circ$

**数学 I 授業プリント # 50**

- ① (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 (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 (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 (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 (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 (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 # 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 (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**

- $\sin 30^\circ = \frac{1}{2}$ ,  $\sin 45^\circ = \frac{1}{\sqrt{2}}$ ,  $\sin 60^\circ = \frac{\sqrt{3}}{2}$   $\sin 120^\circ = \frac{\sqrt{3}}{2}$ ,  $\cos 120^\circ = -\frac{1}{2}$ ,  $\tan 120^\circ = -\sqrt{3}$   
 $\cos 30^\circ = \frac{\sqrt{3}}{2}$ ,  $\cos 45^\circ = \frac{1}{\sqrt{2}}$ ,  $\cos 60^\circ = \frac{1}{2}$   $\sin 135^\circ = \frac{1}{\sqrt{2}}$ ,  $\cos 135^\circ = -\frac{1}{\sqrt{2}}$ ,  $\tan 135^\circ = -1$   
 $\tan 30^\circ = \frac{1}{\sqrt{3}}$ ,  $\tan 45^\circ = 1$ ,  $\tan 60^\circ = \sqrt{3}$   $\sin 150^\circ = \frac{1}{2}$ ,  $\cos 150^\circ = -\frac{\sqrt{3}}{2}$ ,  $\tan 150^\circ = -\frac{1}{\sqrt{3}}$   
 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 # 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)  $60^\circ$  (2)  $60^\circ$  (3)  $45^\circ$  (4)  $60^\circ$  (5)  $135^\circ$  (6)  $120^\circ$  (7)  $120^\circ$

数学 I 授業プリント # 61

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

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  $64 \text{ cm}^2$  ②  $250 \text{ cm}^3$  ③  $8 \text{ cm}^2$  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  $144^\circ$  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)  $72 \text{ cm}^2$  (2)  $32\pi \text{ cm}^2$  (3)  $79 \text{ cm}^2$  (4)  $100\pi \text{ cm}^2$  (5)  $132 \text{ cm}^2$  (6)  $55\pi \text{ cm}^2$

② (1)  $30 \text{ cm}^3$  (2)  $24\pi \text{ cm}^3$  (3)  $75 \text{ cm}^3$  (4)  $96\pi \text{ cm}^3$  (5)  $196 \text{ cm}^3$  (6)  $40 \text{ cm}^3$

③ (1)  $90^\circ$  (2)  $45\pi \text{ cm}^2$

数学 I 冬休み補習プリント # 1

① (1)  $28 \text{ cm}^2$  (2)  $25 \text{ cm}^2$  (3)  $24 \text{ cm}^2$  (4)  $9 \text{ cm}^2$  (5)  $10 \text{ cm}^2$  (6)  $3 \text{ cm}^2$  (7)  $5 \text{ cm}^2$  (8)  $15 \text{ cm}^2$  (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)  $70 \text{ cm}^3$  (2)  $45 \text{ cm}^3$  (3)  $16\pi \text{ cm}^3$  (4)  $18 \text{ cm}^3$  (5)  $32\pi \text{ cm}^3$  (6)  $\frac{245}{6} \text{ cm}^3$

(7)  $28 \text{ cm}^3$  (8)  $12 \text{ cm}^3$  (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)  $294 \text{ cm}^2$  (2)  $343 \text{ cm}^3$  ② (1)  $72 \text{ cm}^2$  (2)  $30 \text{ cm}^3$  ③ (1)  $96 \text{ cm}^2$  (2)  $48 \text{ cm}^3$

④ (1)  $80\pi \text{ cm}^2$  (2)  $96\pi \text{ cm}^3$  ⑤ (1) 出題ミス (2)  $196 \text{ cm}^3$  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)  $10 \text{ cm}$  (3)  $216^\circ$  (4)  $96\pi \text{ cm}^2$

数学 I 冬休み補習プリント # 3

① (1)  $360 \text{ cm}^2$  (2)  $400 \text{ cm}^3$  (3)  $90 \text{ cm}^2$  (4)  $50 \text{ cm}^3$

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)  $84 \text{ cm}^2$  (2)  $36 \text{ cm}^3$  (3)  $189 \text{ cm}^2$  (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)  $94 \text{ cm}^2$  (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)  $126 \text{ cm}^3$

③ (1)  $120^\circ$  (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)  $10\text{cm}$  (3)  $216^\circ$  (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  $2\text{cm}$   
 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  $96\text{cm}^2$ , 体積  $48\text{cm}^3$  (2) 表面積  $216\text{cm}^2$ , 体積  $162\text{cm}^3$   
 ③ (1) 表面積  $72\text{cm}^2$ , 体積  $30\text{cm}^3$  (2) 表面積  $128\text{cm}^2$ , 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)  $21\text{cm}^2$  (2)  $16\text{cm}^2$  (3)  $35\text{cm}^2$  (4)  $16\text{cm}^2$  (5)  $12\text{cm}^2$  (6)  $\frac{3}{2}\text{cm}^2$  (7)  $68\text{cm}^2$  (8)  $\frac{49}{2}\text{cm}^2$  (9)  $45\text{cm}^2$   
 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)  $343\text{cm}^3$  (2)  $48\text{cm}^3$  (3)  $96\pi\text{cm}^3$  (4)  $\frac{175}{3}\pi\text{cm}^3$  (5)  $126\text{cm}^3$  (6)  $70\text{cm}^3$  (2013/7/31 訂正) (7)  $28\text{cm}^3$  (8)  $12\text{cm}^3$   
 (9)  $\text{cm}^3$  (10)  $\text{cm}^3$   
 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)  $96\text{cm}^2$  (2)  $48\text{cm}^3$  (3)  $216\text{cm}^2$  (4)  $162\text{cm}^2$   
 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)  $79\text{cm}^2$  (2)  $35\text{cm}^3$  (3)  $\frac{316}{9}\text{cm}^2$  (4)  $\frac{280}{27}\text{cm}^2$