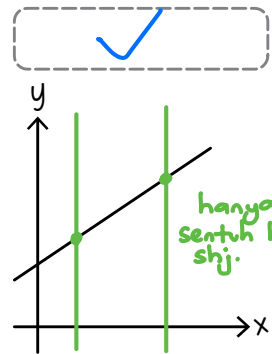
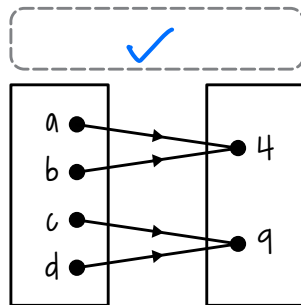
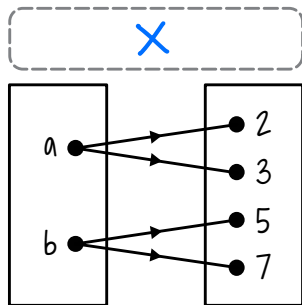
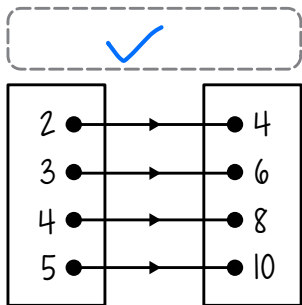
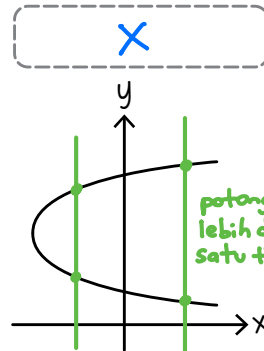
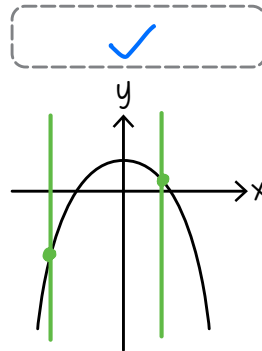
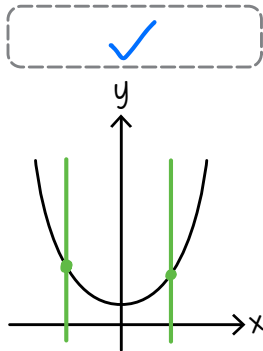
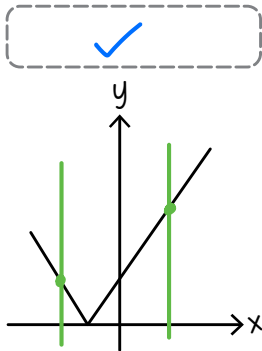
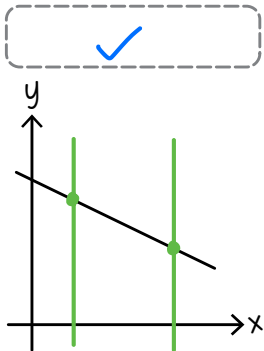


WORKSHEET 1: FUNGSI ^{1 dgn 1} ^{banyak dgn 1}

tentukan setiap yang berikut fungsi atau bukan fungsi

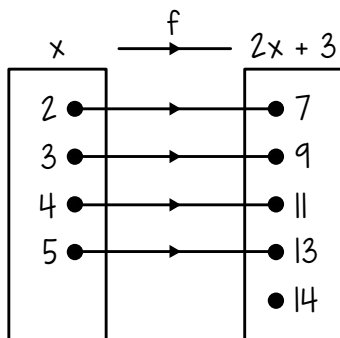


* ujian garis mencancang.



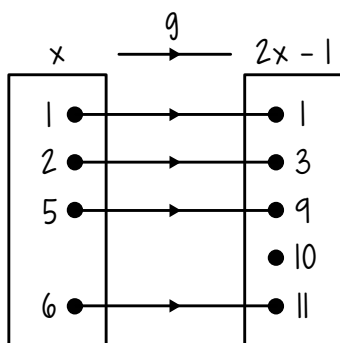
potong lebih dari satu titik

lengkapkan jadual berikut

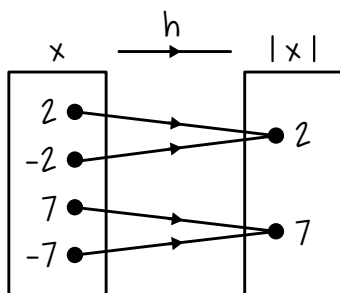


$f(x) = 2x + 3$ * fungsi f memetakan x kepada $2x + 3$

domain = { 2, 3, 4, 5 }		
kodomain = { 7, 9, 11, 13, 14 }		
julat = { 7, 9, 11, 13 }		
$f(2) = 7$	$f(4) = 11$	$f(5) = 13$
$f^{-1}(11) = 4$	$f^{-1}(7) = 2$	$f^{-1}(9) = 3$



domain = { 1, 2, 5, 6 }		
kodomain = { 1, 3, 9, 10, 11 }		
julat = { 1, 3, 9, 11 }		
$g(6) = 11$	$g(2) = 3$	$g(5) = 9$
$g^{-1}(1) = 1$	$g^{-1}(9) = 5$	$g^{-1}(11) = 6$



domain = { 2, -2, 7, -7 }		
kodomain = { 2, 7 }		
julat = { 2, 7 }		
$h(2) = 2$	$h(-2) = 2$	$h(-7) = 7$
$h(7) = 7$	$h^{-1}(2) = 2, -2$	$h^{-1}(7) = 7, -7$

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WORKSHEET 2: GRAF MODULUS

lukiskan graf bagi setiap yang berikut

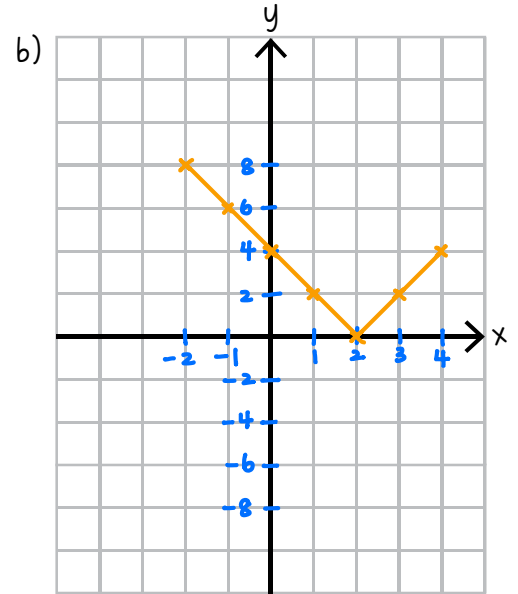
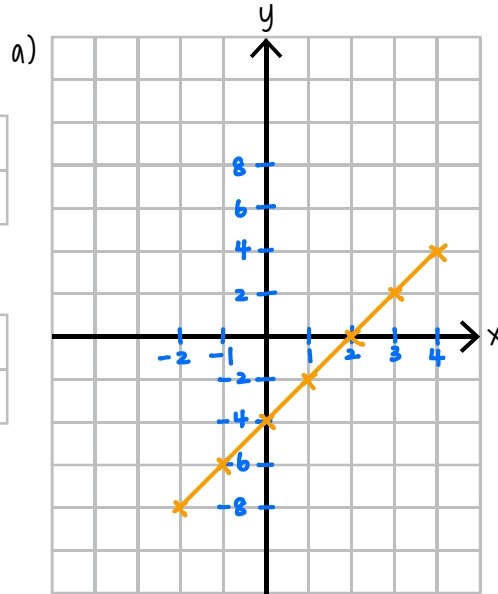
1. domain $-2 \leq x \leq 4$

a) $y = 2x - 4$

x	-2	-1	0	1	2	3	4
y	-8	-6	-4	-2	0	2	4

b) $y = |2x - 4|$

x	-2	-1	0	1	2	3	4
y	8	6	4	2	0	2	4



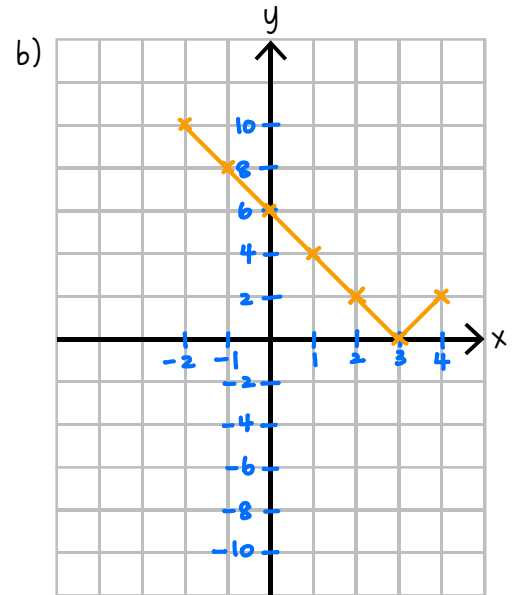
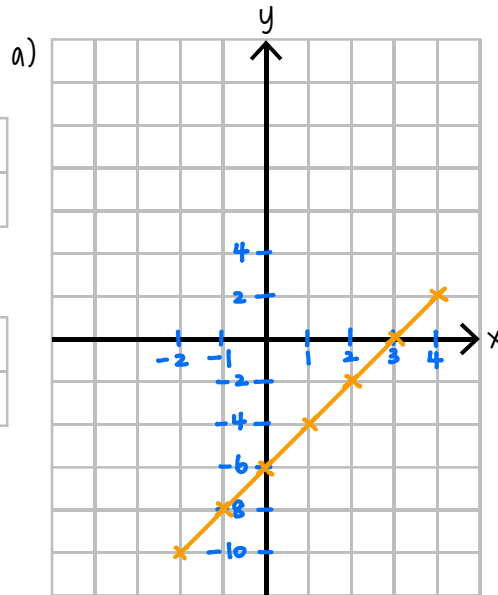
2. domain $-2 \leq x \leq 4$

a) $y = 2x - 6$

x	-2	-1	0	1	2	3	4
y	-10	-8	-6	-4	-2	0	2

b) $y = |2x - 6|$

x	-2	-1	0	1	2	3	4
y	10	8	6	4	2	0	2



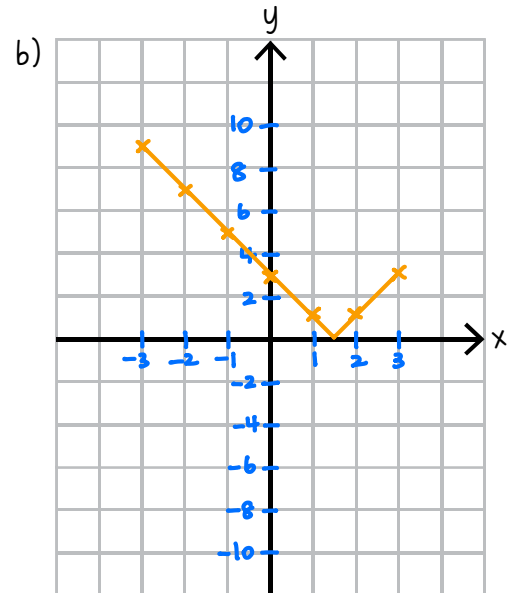
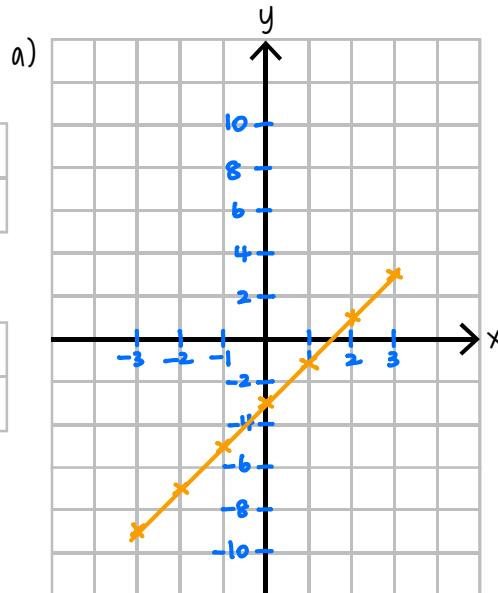
3. domain $-3 \leq x \leq 3$

a) $y = 2x - 3$

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

b) $y = |2x - 3|$

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



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WORKSHEET 2: GRAF MODULUS

lukiskan graf bagi setiap yang berikut

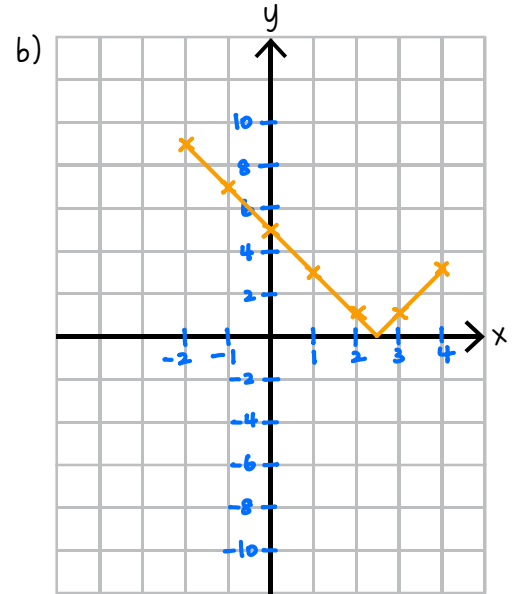
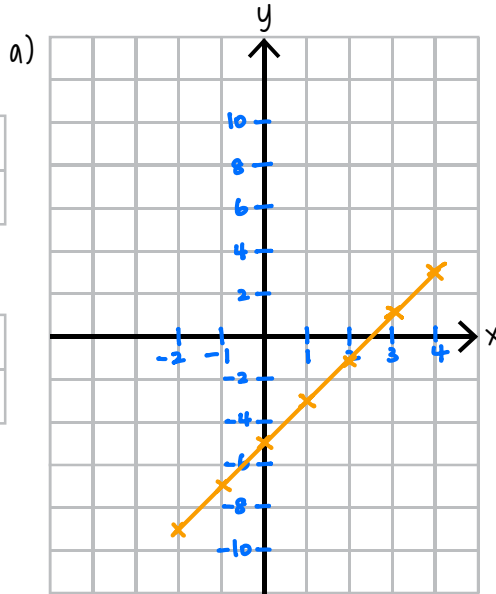
4. domain $-2 \leq x \leq 4$

a) $y = 2x - 5$

x	-2	-1	0	1	2	3	4
y	-9	-7	-5	-3	-1	1	3

b) $y = |2x - 5|$

x	-2	-1	0	1	2	3	4
y	9	7	5	3	1	1	3



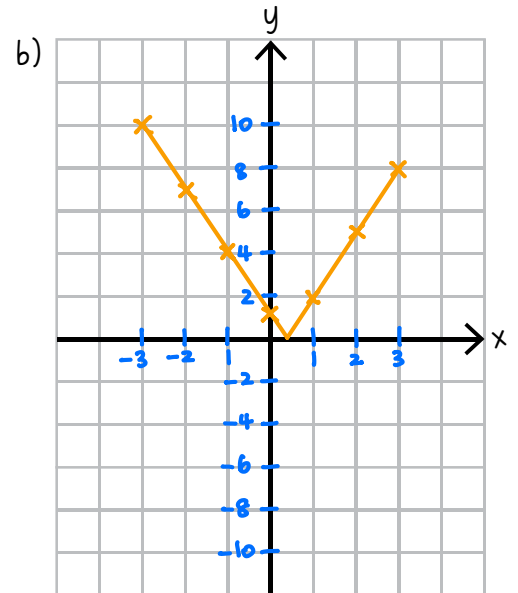
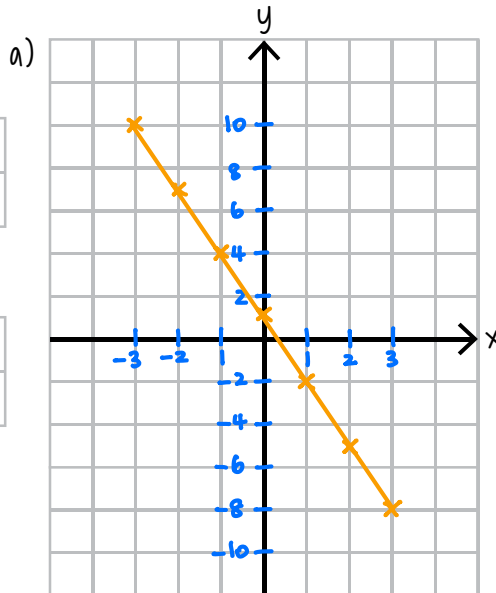
5. domain $-3 \leq x \leq 3$

a) $y = -3x + 1$

x	-3	-2	-1	0	1	2	3
y	10	7	4	1	-2	-5	-8

b) $y = |-3x + 1|$

x	-3	-2	-1	0	1	2	3
y	10	7	4	1	2	5	8



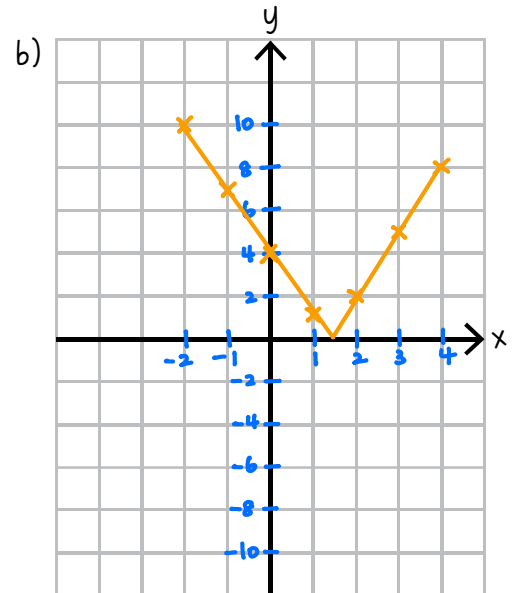
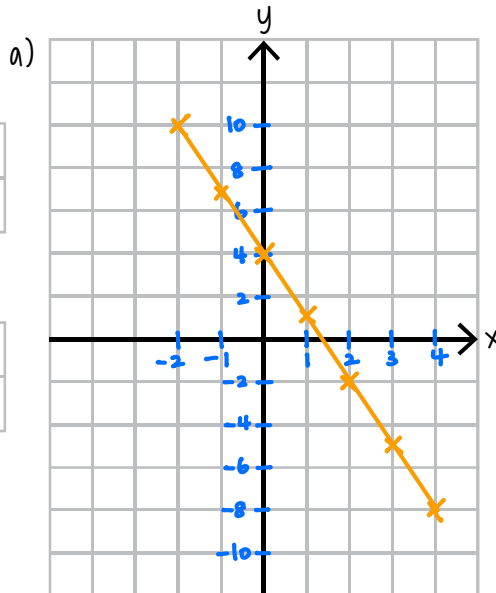
6. domain $-2 \leq x \leq 4$

a) $y = -3x + 4$

x	-2	-1	0	1	2	3	4
y	10	7	4	1	-2	-5	-8

b) $y = |-3x + 4|$

x	-2	-1	0	1	2	3	4
y	10	7	4	1	2	5	8



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WORKSHEET 3: MENENTUKAN IMEJ ATAU OBJEK SUATU FUNGSI

selesaikan setiap yang berikut

1. $f: x \rightarrow 2x - \frac{5}{x}, x \neq 0$
 Cari: a) $2(4) - \frac{5}{4} = \frac{27}{4}$
 a) $f(4)$
 b) imej bagi $\frac{1}{2}$ bawah f .
 c) nilai-nilai x yang mungkin apabila imejnya ialah -3 .

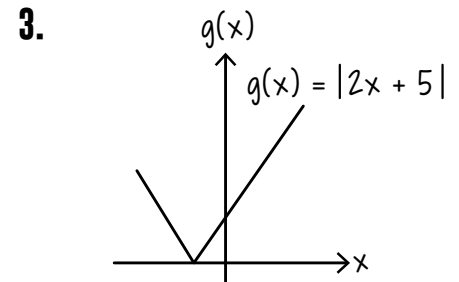
b) $f(\frac{1}{2}) = 2(\frac{1}{2}) - \frac{5}{\frac{1}{2}} = -9$

c) $f(x) = -3$
 $2x - \frac{5}{x} = -3$
 $2x^2 - 5 = -3x$
 $2x^2 + 3x - 5 = 0$
 $(x-1)(2x+5) = 0$
 $x = 1 \quad x = -\frac{5}{2}$

2. $h: x \rightarrow 3 + \frac{12}{x-2}, x \neq 2$
 a) cari imej bagi 3 dan -4
 b) imej bagi $h(a) = a$, cari nilai-nilai yang mungkin bagi a .

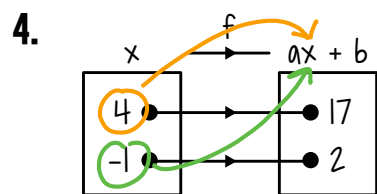
a) $h(3) = 15, h(-4) = 1$

b) $3 + \frac{12}{a-2} = a$
 $3(a-2) + 12 = a(a-2)$
 $3a - 6 + 12 = a^2 - 2a$
 $a^2 - 2a = 3a - 6 + 12$
 $a^2 - 2a - 3a + 6 - 12 = 0$
 $a^2 - 5a - 6 = 0$
 $(a+1)(a-6) = 0$
 $a = -1 \quad a = 6$



- Cari: a) $|2(-3) + 5| = 1$
 a) $g(-3)$ dan $g(-2)$
 b) nilai-nilai x dengan $g(x) = 13$
 c) nilai-nilai x yang memetakan kepada dirinya sendiri.
 d) domain bagi $g(x) < 9$
 e) domain bagi $g(x) \geq 15$

b) $|2x + 5| = 13$
 $2x + 5 = \pm 13$
 $2x + 5 = 13 \quad | \quad 2x + 5 = -13$
 $2x = 8 \quad | \quad 2x = -18$
 $x = 4 \quad | \quad x = -9$



Cari nilai a dan b .
 $4a + b = 17$
 $-a + b = 2$] persamaan linear serentak.
 $\therefore a = 3$
 $b = 5$

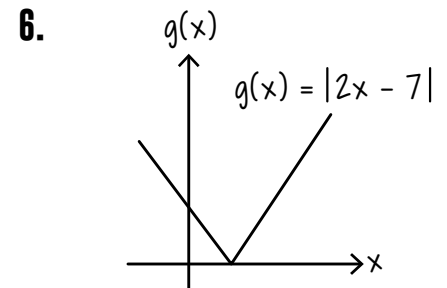
5. $f: x \rightarrow 3x - \frac{4}{x}, x \neq 0$
 Cari: a) $3(-2) - \frac{4}{(-2)} = -4$
 a) $f(-2)$
 b) imej bagi $\frac{1}{3}$ bawah f .
 c) nilai-nilai x yang mungkin apabila imejnya ialah 4.

b) $f(\frac{1}{3}) = 3(\frac{1}{3}) - \frac{4}{\frac{1}{3}} = -11$

c) $f(x) = 4$
 $3x - \frac{4}{x} = 4$
 $3x^2 - 4 = 4x$
 $3x^2 - 4x - 4 = 0$
 $(x-2)(3x+2) = 0$
 $x = 2 \quad x = -\frac{2}{3}$

c) $|2x + 5| = x$
 $2x + 5 = \pm x$
 $2x + 5 = x \quad | \quad 2x + 5 = -x$
 $x = -5 \quad | \quad 3x = -5$
 $x = -\frac{5}{3}$

* soalan d & e refer extra page.



- Cari: a) $|2(1) - 7| = 5$
 a) $g(1)$ dan $g(-4)$
 b) nilai-nilai x dengan $g(x) = 23$
 c) nilai-nilai x yang memetakan kepada dirinya sendiri.
 d) domain bagi $g(x) < 3$
 e) domain bagi $g(x) \geq 17$

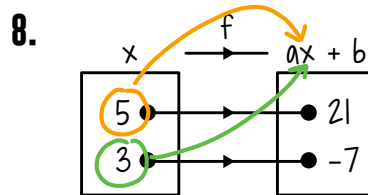
b) $|2x - 7| = 23$
 $2x - 7 = \pm 23$
 $2x - 7 = 23 \quad | \quad 2x - 7 = -23$
 $2x = 30 \quad | \quad 2x = -16$
 $x = 15 \quad | \quad x = -8$

c) $|2x - 7| = x$
 $2x - 7 = \pm x$
 $2x - 7 = x \quad | \quad 2x - 7 = -x$
 $x = 7 \quad | \quad 3x = 7$
 $x = \frac{7}{3}$

7. $h: x \rightarrow 5 + \frac{8}{x-3}, x \neq 3$
 a) cari imej bagi -1 dan 5
 b) imej bagi $h(a) = a$, cari nilai-nilai yang mungkin bagi a .

a) $h(-1) = 3, h(5) = 9$

b) $5 + \frac{8}{a-3} = a$
 $5(a-3) + 8 = a(a-3)$
 $5a - 15 + 8 = a^2 - 3a$
 $5a - 7 = a^2 - 3a$
 $a^2 - 8a + 7 = 0$
 $(a-1)(a-7) = 0$
 $a = 1 \quad a = 7$



Cari nilai a dan b .
 $5a + b = 21$
 $3a + b = -7$
 $\therefore a = 14$
 $b = -49$

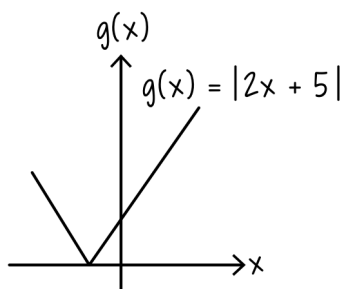
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3.



Cari:

- $g(-3)$ dan $g(-2)$
- nilai-nilai x dengan $g(x) = 13$
- nilai-nilai x yang memetakan kepada dirinya sendiri.
- domain bagi $g(x) < 9$
- domain bagi $g(x) \geq 15$

$$d) \ g(x) < 9$$

$$|2x+5| < 9$$

$$-9 < 2x+5 < 9$$

$$\textcircled{1} \quad \begin{array}{l} 2x+5 < 9 \\ 2x < 4 \\ x < 2 \end{array} \quad \textcircled{2} \quad \begin{array}{l} -9 < 2x+5 \\ -14 < 2x \\ -7 < x \end{array} \quad \textcircled{3} \quad \therefore \underline{-7 < x < 2} \#$$

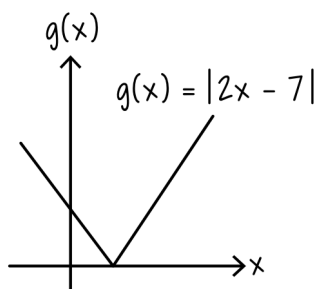
$$e) \ g(x) \geq 15$$

$$|2x+5| \geq 15$$

$$\begin{array}{l} \swarrow \quad \searrow \\ 2x+5 \geq 15 \quad 2x+5 \leq -15 \\ 2x \geq 10 \quad 2x \leq -20 \\ \underline{x \geq 5} \quad \underline{x \leq -10} \end{array} \quad \therefore \underline{x \geq 5} \text{ atau } \underline{x \leq -10} \#$$

* refer textbook page 10.

6.



Cari:

- $g(1)$ dan $g(-4)$
- nilai-nilai x dengan $g(x) = 23$
- nilai-nilai x yang memetakan kepada dirinya sendiri.
- domain bagi $g(x) < 3$
- domain bagi $g(x) \geq 17$

$$d) \ g(x) < 3$$

$$|2x-7| < 3$$

$$-3 < 2x-7 < 3$$

$$\textcircled{1} \quad \begin{array}{l} 2x-7 < 3 \\ 2x < 10 \\ x < 5 \end{array} \quad \textcircled{2} \quad \begin{array}{l} -3 < 2x-7 \\ 4 < 2x \\ 2 < x \end{array} \quad \textcircled{3} \quad \therefore \underline{2 < x < 5} \#$$

$$e) \ g(x) \geq 17$$

$$|2x-7| \geq 17$$

$$\begin{array}{l} \swarrow \quad \searrow \\ 2x-7 \geq 17 \quad 2x-7 \leq -17 \\ 2x \geq 24 \quad 2x \leq -10 \\ \underline{x \geq 12} \quad \underline{x \leq -5} \end{array} \quad \therefore \underline{x \geq 12} \text{ atau } \underline{x \leq -5} \#$$

WORKSHEET 4: FUNGSI GUBAHAN

tentukan $fg(x)$, $gf(x)$, $ff(x)$ dan $gg(x)$

1. $f(x) = 3x + 5$
 $g(x) = 2x - 7$

$$ff(x) = 3f(x) + 5$$
$$= 3(3x + 5) + 5$$
$$= 9x + 15 + 5$$
$$= \underline{9x + 20}$$

$$gg(x) = 2g(x) - 7$$
$$= 2(2x - 7) - 7$$
$$= 4x - 14 - 7$$
$$= \underline{4x - 21}$$

$$fg(x) = 3g(x) + 5$$
$$= 3(2x - 7) + 5$$
$$= 6x - 21 + 5$$
$$= \underline{6x - 16}$$

$$gf(x) = 2f(x) - 7$$
$$= 2(3x + 5) - 7$$
$$= 6x + 10 - 7$$
$$= \underline{6x + 3}$$

2. $f(x) = 2x - 1$
 $g(x) = 3x + 8$

$$ff(x) = 2f(x) - 1$$
$$= 2(2x - 1) - 1$$
$$= 4x - 2 - 1$$
$$= \underline{4x - 3}$$

$$gg(x) = 3g(x) + 8$$
$$= 3(3x + 8) + 8$$
$$= 9x + 24 + 8$$
$$= \underline{9x + 32}$$

$$fg(x) = 2g(x) - 1$$
$$= 2(3x + 8) - 1$$
$$= 6x + 16 - 1$$
$$= \underline{6x + 15}$$

$$gf(x) = 3f(x) + 8$$
$$= 3(2x - 1) + 8$$
$$= 6x - 3 + 8$$
$$= \underline{6x + 5}$$

3. $f(x) = -4x + 9$
 $g(x) = 5 - 2x$

$$ff(x) = -4f(x) + 9$$
$$= -4(-4x + 9) + 9$$
$$= 16x - 36 + 9$$
$$= \underline{16x - 27}$$

$$gg(x) = 5 - 2g(x)$$
$$= 5 - 2(5 - 2x)$$
$$= 5 - 10 + 4x$$
$$= \underline{4x - 5}$$

$$fg(x) = -4g(x) + 9$$
$$= -4(5 - 2x) + 9$$
$$= -20 + 8x + 9$$
$$= \underline{8x - 11}$$

$$gf(x) = 5 - 2f(x)$$
$$= 5 - 2(-4x + 9)$$
$$= 5 + 8x - 18$$
$$= \underline{8x - 13}$$

4. $f(x) = -8x + 3$
 $g(x) = -6 - 7x$

$$ff(x) = -8f(x) + 3$$
$$= -8(-8x + 3) + 3$$
$$= 64x - 24 + 3$$
$$= \underline{64x - 21}$$

$$gg(x) = -6 - 7g(x)$$
$$= -6 - 7(-6 - 7x)$$
$$= -6 + 42 + 49x$$
$$= \underline{49x + 36}$$

$$fg(x) = -8g(x) + 3$$
$$= -8(-6 - 7x) + 3$$
$$= 48 + 56x + 3$$
$$= \underline{56x + 51}$$

$$gf(x) = -6 - 7f(x)$$
$$= -6 - 7(-8x + 3)$$
$$= -6 + 56x - 21$$
$$= \underline{56x - 27}$$

5. $f(x) = x^2$
 $g(x) = 3x + 2$

$$ff(x) = (x^2)^2$$
$$= \underline{x^4}$$

$$gg(x) = 3g(x) + 2$$
$$= 3(3x + 2) + 2$$
$$= 9x + 6 + 2$$
$$= \underline{9x + 8}$$

$$fg(x) = (3x + 2)^2$$
$$= (3x + 2)(3x + 2)$$
$$= \underline{9x^2 + 12x + 4}$$

$$gf(x) = 3f(x) + 2$$
$$= \underline{3x^2 + 2}$$

6. $f(x) = 5 - 2x$
 $g(x) = x^2$

$$ff(x) = 5 - 2f(x)$$
$$= 5 - 2(5 - 2x)$$
$$= 5 - 10 + 4x$$
$$= \underline{4x - 5}$$

$$gg(x) = (x^2)^2$$
$$= \underline{x^4}$$

$$fg(x) = 5 - 2g(x)$$
$$= 5 - 2(x^2)$$
$$= \underline{5 - 2x^2}$$

$$gf(x) = (5 - 2x)^2$$
$$= (5 - 2x)(5 - 2x)$$
$$= \underline{25 - 20x + 4x^2}$$

7. $f(x) = x^2 + 6$
 $g(x) = 2x - 1$

$$ff(x) = (f(x))^2 + 6$$
$$= (x^2 + 6)^2 + 6$$
$$= (x^2 + 6)(x^2 + 6) + 6$$
$$= x^4 + 12x^2 + 36 + 6$$
$$= \underline{x^4 + 12x^2 + 42}$$

$$gg(x) = 2g(x) - 1$$
$$= 2(2x - 1) - 1$$
$$= 4x - 2 - 1$$
$$= \underline{4x - 3}$$

$$gf(x) = 2f(x) - 1$$
$$= 2(x^2 + 6) - 1$$
$$= 2x^2 + 12 - 1$$
$$= \underline{2x^2 + 11}$$

$$fg(x) = (2x - 1)^2 + 6$$
$$= (2x - 1)(2x - 1) + 6$$
$$= 4x^2 - 4x + 1 + 6$$
$$= \underline{4x^2 - 4x + 7}$$

8. $f(x) = 7 + x$
 $g(x) = x^2 - 14$

$$ff(x) = 7 + f(x)$$
$$= 7 + (7 + x)$$
$$= \underline{x + 14}$$

$$gg(x) = (x^2 - 14)^2 - 14$$
$$= (x^2 - 14)(x^2 - 14) - 14$$
$$= x^4 - 28x^2 + 196 - 14$$
$$= \underline{x^4 - 28x^2 + 182}$$

$$fg(x) = 7 + g(x)$$
$$= 7 + (x^2 - 14)$$
$$= \underline{x^2 - 7}$$

$$gf(x) = (7 + x)^2 - 14$$
$$= (7 + x)(7 + x) - 14$$
$$= 49 + 14x + x^2 - 14$$
$$= \underline{x^2 + 14x + 35}$$



WORKSHEET 4: FUNGSI GUBAHAN

[6]

tentukan $fg(x)$, $gf(x)$, $ff(x)$ dan $gg(x)$

9. $f(x) = \frac{x}{2}$
 $g(x) = 2x + 8$
 $ff(x) = \frac{f(x)}{2} = \frac{\frac{x}{2}}{2} = \frac{x}{4}$

$gg(x) = 2g(x) + 8$
 $= 2(2x + 8) + 8$
 $= 4x + 16 + 8$
 $= \underline{4x + 24}$

$gf(x) = 2f(x) + 8$
 $= 2\left(\frac{x}{2}\right) + 8$
 $= \underline{x + 8}$

$fg(x) = \frac{g(x)}{2}$
 $= \frac{2x + 8}{2}$
 $= \underline{x + 4}$

10. $f(x) = \frac{x}{3}$
 $g(x) = 6x - 3$
 $ff(x) = \frac{\frac{x}{3}}{3} = \frac{x}{9}$

$gg(x) = 6g(x) - 3$
 $= 6(6x - 3) - 3$
 $= 36x - 18 - 3$
 $= \underline{36x - 21}$

$fg(x) = \frac{g(x)}{3}$
 $= \frac{6x - 3}{3} = \underline{2x - 1}$

$gf(x) = 6f(x) - 3$
 $= 6\left(\frac{x}{3}\right) - 3$
 $= \underline{2x - 3}$

11. $f(x) = \frac{4x}{3}$
 $g(x) = 1 - 6x$
 $ff(x) = \frac{4f(x)}{3}$
 $= \frac{4\left(\frac{4x}{3}\right)}{3} = \frac{16x}{9}$

$gg(x) = 1 - 6g(x)$
 $= 1 - 6(1 - 6x)$
 $= 1 - 6 + 36x$
 $= \underline{36x - 5}$

$fg(x) = \frac{4(1 - 6x)}{3}$
 $= \frac{4 - 24x}{3}$
 $= \underline{\frac{4}{3} - 8x}$

$gf(x) = 1 - 6\left(\frac{4x}{3}\right)$
 $= \underline{1 - 8x}$

12. $f(x) = \frac{5x}{2}$
 $g(x) = 7 + 4x$
 $ff(x) = \frac{5\left(\frac{5x}{2}\right)}{2} = \frac{25x}{4}$

$gg(x) = 7 + 4(7 + 4x)$
 $= 7 + 28 + 16x$
 $= \underline{16x + 35}$

$fg(x) = \frac{5(7 + 4x)}{2}$
 $= \frac{35 + 20x}{2} = \underline{\frac{35}{2} + 10x}$

$gf(x) = 7 + 4\left(\frac{5x}{2}\right)$
 $= \underline{7 + 10x}$

13. $f(x) = \frac{2x + 1}{3}$
 $g(x) = -x + 4$

14. $f(x) = \frac{5 + 3x}{2}$
 $g(x) = 8 - x$

15. $f(x) = \frac{-2x + 7}{4}$
 $g(x) = 3 - 5x$

16. $f(x) = \frac{-3x + 8}{5}$
 $g(x) = 2 - 4x$

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$$13. \quad f(x) = \frac{2x+1}{3}$$

$$g(x) = -x+4$$

$$gg(x) = -g(x)+4$$

$$= -(-x+4)+4$$

$$= x-4+4$$

$$= \underline{x}$$

$$ff(x) = \frac{2f(x)+1}{3}$$

$$= \frac{2\left(\frac{2x+1}{3}\right)+1}{3}$$

$$= \frac{\frac{4x+2}{3} + \frac{3}{3}}{3}$$

$$= \left(\frac{4x+2+3}{3}\right) \times \frac{1}{3}$$

$$= \underline{\frac{4x+5}{9}}$$

$$fg(x) = \frac{2g(x)+1}{3}$$

$$= \frac{2(-x+4)+1}{3}$$

$$= \frac{-2x+8+1}{3}$$

$$= \underline{\frac{-2x+9}{3}}$$

$$gf(x) = -f(x)+4$$

$$= -\left(\frac{2x+1}{3}\right) + \frac{12}{3}$$

$$= \frac{-2x-1+12}{3}$$

$$= \underline{\frac{-2x+11}{3}}$$

$$14. \quad f(x) = \frac{5+3x}{2}$$

$$g(x) = 8-x$$

$$gg(x) = 8-g(x)$$

$$= 8-(8-x)$$

$$= 8-8+x$$

$$= \underline{x}$$

$$ff(x) = \frac{5+3f(x)}{2}$$

$$= \frac{5+3\left(\frac{5+3x}{2}\right)}{2}$$

$$= \frac{\frac{10}{2} + \frac{15+9x}{2}}{2}$$

$$= \left(\frac{10+15+9x}{2}\right) \times \frac{1}{2}$$

$$= \underline{\frac{9x+25}{4}}$$

$$fg(x) = \frac{5+3g(x)}{2}$$

$$= \frac{5+3(8-x)}{2}$$

$$= \frac{5+24-3x}{2}$$

$$= \underline{\frac{29-3x}{2}}$$

$$gf(x) = 8-f(x)$$

$$= 8 - \frac{5+3x}{2}$$

$$= \frac{16-(5+3x)}{2}$$

$$= \frac{16-5-3x}{2}$$

$$= \underline{\frac{11-3x}{2}}$$

$$15. \quad f(x) = \frac{-2x+7}{4}$$

$$g(x) = 3-5x$$

$$gg(x) = 3-5g(x)$$

$$= 3-5(3-5x)$$

$$= 3-15+25x$$

$$= \underline{25x-12}$$

$$ff(x) = \frac{-2f(x)+7}{4}$$

$$= \frac{-2\left(\frac{-2x+7}{4}\right)+7}{4}$$

$$= \frac{\frac{4x-14}{4} + \frac{28}{4}}{4}$$

$$= \left(\frac{4x-14+28}{4}\right) \times \frac{1}{4}$$

$$= \frac{4x+14}{16} = \underline{\frac{2x+7}{8}}$$

$$fg(x) = \frac{-2g(x)+7}{4}$$

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

$$= \frac{-6+10x+7}{4}$$

$$= \underline{\frac{10x+1}{4}}$$

$$gf(x) = 3-5f(x)$$

$$= 3-5\left(\frac{-2x+7}{4}\right)$$

$$= \frac{12+10x-35}{4}$$

$$= \underline{\frac{10x-23}{4}}$$

$$16. \quad f(x) = \frac{-3x+8}{5}$$

$$g(x) = 2-4x$$

$$gg(x) = 2-4g(x)$$

$$= 2-4(2-4x)$$

$$= 2-8+16x$$

$$= \underline{16x-6}$$

$$ff(x) = \frac{-3f(x)+8}{5}$$

$$= \frac{-3\left(\frac{-3x+8}{5}\right)+8}{5}$$

$$= \left(\frac{9x-24+40}{5}\right) \times \frac{1}{5}$$

$$= \underline{\frac{9x+16}{25}}$$

$$fg(x) = 2-4f(x)$$

$$= 2-4\left(\frac{-3x+8}{5}\right)$$

$$= \frac{10+12x-32}{5}$$

$$= \underline{\frac{12x-22}{5}}$$

$$gf(x) = -3g(x)+8$$

$$= -3(2-4x)+8$$

$$= \frac{-6+12x+8}{5}$$

$$= \underline{\frac{12x+2}{5}}$$

WORKSHEET 5: FUNGSI GUBAHAN

[7]

selesaikan setiap yang berikut

1. $fg(x) = 5x + 8$
 $f(x) = x - 12$
 $g(x) = ?$

$$fg(x) = g(x) - 12$$

$$fg(x) = 5x + 8$$

$$g(x) - 12 = 5x + 8$$

$$\underline{g(x) = 5x + 20}$$

2. $fg(x) = -2x + 7$
 $f(x) = x - 9$
 $g(x) = ?$

$$fg(x) = g(x) - 9$$

$$fg(x) = -2x + 7$$

$$g(x) - 9 = -2x + 7$$

$$\underline{g(x) = -2x + 16}$$

3. $fg(x) = -4x - 11$
 $f(x) = 2x + 5$
 $g(x) = ?$

$$fg(x) = 2g(x) + 5$$

$$fg(x) = -4x - 11$$

$$2g(x) + 5 = -4x - 11$$

$$2g(x) = -4x - 16$$

$$\underline{g(x) = -2x - 8}$$

4. $fg(x) = -9x + 2$
 $f(x) = 3x - 4$
 $g(x) = ?$

$$fg(x) = 3g(x) - 4$$

$$fg(x) = -9x + 2$$

$$3g(x) - 4 = -9x + 2$$

$$3g(x) = -9x + 6$$

$$\underline{g(x) = -3x + 2}$$

5. $gf(x) = x^2 + 3$
 $f(x) = ?$
 $g(x) = x - 9$

$$gf(x) = f(x) - 9$$

$$gf(x) = x^2 + 3$$

$$f(x) - 9 = x^2 + 3$$

$$\underline{f(x) = x^2 + 12}$$

6. $gf(x) = 2x^2 - 6x + 7$
 $f(x) = ?$
 $g(x) = 2x + 1$

$$gf(x) = 2f(x) + 1$$

$$gf(x) = 2x^2 - 6x + 7$$

$$2f(x) + 1 = 2x^2 - 6x + 7$$

$$2f(x) = 2x^2 - 6x + 6$$

$$\underline{f(x) = x^2 - 3x + 3}$$

7. $gf(x) = 6x^2 - 3x - 9$
 $f(x) = ?$
 $g(x) = 3x + 6$

$$gf(x) = 3f(x) + 6$$

$$gf(x) = 6x^2 - 3x - 9$$

$$3f(x) + 6 = 6x^2 - 3x - 9$$

$$3f(x) = 6x^2 - 3x - 15$$

$$\underline{f(x) = 2x^2 - x - 5}$$

* buat worksheet 7 dahulu!

8. $fg(x) = 4x - 3$
 $f(x) = ?$
 $g(x) = x + 5$

$$y = x + 5$$

$$x = y - 5$$

$$\underline{g^{-1}(x) = x - 5}$$

$$fg(x) = 4x - 3$$

$$fgg^{-1}(x) = 4g^{-1}(x) - 3$$

$$f(x) = 4(x - 5) - 3$$

$$= 4x - 20 - 3$$

$$\underline{= 4x - 23}$$

9. $fg(x) = 2x - 9$
 $f(x) = ?$
 $g(x) = -8 + x$

$$y = -8 + x$$

$$x = y + 8$$

$$\underline{g^{-1}(x) = x + 8}$$

$$fg(x) = 2x - 9$$

$$fgg^{-1}(x) = 2g^{-1}(x) - 9$$

$$f(x) = 2(x + 8) - 9$$

$$= 2x + 16 - 9$$

$$\underline{= 2x + 7}$$

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selesaikan setiap yang berikut

10. $fg(x) = 8x - 4$
 $f(x) = ?$
 $g(x) = 2x + 5$
 $y = 2x + 5$
 $2x = y - 5$
 $x = \frac{y-5}{2}$
 $g^{-1}(x) = \frac{x-5}{2}$

$fg(x) = 8x - 4$
 $fgg^{-1}(x) = 8g^{-1}(x) - 4$
 $f(x) = 8\left(\frac{x-5}{2}\right) - 4$
 $= 4(x-5) - 4$
 $= 4x - 20 - 4$
 $= \underline{4x - 24}$

11. $fg(x) = 9x - 10$
 $f(x) = ?$
 $g(x) = -4 + 3x$
 $y = -4 + 3x$
 $3x = y + 4$
 $x = \frac{y+4}{3}$
 $g^{-1}(x) = \frac{x+4}{3}$
 $fg(x) = 9x - 10$
 $fgg^{-1}(x) = 9g^{-1}(x) - 10$
 $f(x) = 9\left(\frac{x+4}{3}\right) - 10$
 $= 3(x+4) - 10$
 $= 3x + 12 - 10$
 $= \underline{3x + 2}$

12. $fg(x) = -24x + 9$
 $f(x) = ?$
 $g(x) = -6x - 8$
 $y = -6x - 8$
 $6x = -y - 8$
 $x = \frac{-y-8}{6}$
 $g^{-1}(x) = \frac{-x-8}{6}$
 $fg(x) = -24x + 9$
 $fgg^{-1}(x) = -24g^{-1}(x) + 9$
 $f(x) = -24\left(\frac{-x-8}{6}\right) + 9$
 $= -4(-x-8) + 9$
 $= 4x + 32 + 9$
 $= \underline{4x + 41}$

13. $gf(x) = x^2$
 $f(x) = x - 5$
 $g(x) = ?$
 $y = x - 5$
 $x = y + 5$
 $f^{-1}(x) = x + 5$
 $gf(x) = x^2$
 $gff^{-1}(x) = [f^{-1}(x)]^2$
 $g(x) = (x+5)^2$
 $= \underline{x^2 + 10x + 25}$

14. $gf(x) = x^2$
 $f(x) = 3 - x$
 $g(x) = ?$
 $y = 3 - x$
 $x = 3 - y$
 $f^{-1}(x) = 3 - x$
 $gf(x) = x^2$
 $gff^{-1}(x) = [f^{-1}(x)]^2$
 $g(x) = (3-x)^2$
 $= (3-x)(3-x)$
 $= \underline{9 - 6x + x^2}$

15. $gf(x) = x^2 + 8$
 $f(x) = x - 3$
 $g(x) = ?$
 $y = x - 3$
 $x = y + 3$
 $f^{-1}(x) = x + 3$
 $gf(x) = x^2 + 8$
 $gff^{-1}(x) = [f^{-1}(x)]^2 + 8$
 $g(x) = (x+3)^2 + 8$
 $= x^2 + 6x + 9 + 8$
 $= \underline{x^2 + 6x + 17}$

16. $gf(x) = x^2 - 10$
 $f(x) = -x + 4$
 $g(x) = ?$
 $y = -x + 4$
 $x = -y + 4$
 $f^{-1}(x) = -x + 4$
 $gf(x) = x^2 - 10$
 $gff^{-1}(x) = [f^{-1}(x)]^2 - 10$
 $g(x) = (-x+4)^2 - 10$
 $= (-x+4)(-x+4) - 10$
 $= x^2 - 4x - 4x + 16 - 10$
 $= \underline{x^2 - 8x + 6}$

17. $gf(x) = x^2 + 3x - 8$
 $f(x) = x - 1$
 $g(x) = ?$
 $y = x - 1$
 $x = y + 1$
 $f^{-1}(x) = x + 1$
 $gf(x) = x^2 + 3x - 8$
 $gff^{-1}(x) = (x+1)^2 + 3(x+1) - 8$
 $g(x) = x^2 + 2x + 1 + 3x + 3 - 8$
 $= \underline{x^2 + 5x - 4}$

18. $gf(x) = x^2 - 5x + 9$
 $f(x) = 7 - x$
 $g(x) = ?$
 $y = 7 - x$
 $x = 7 - y$
 $f^{-1}(x) = 7 - x$
 $gf(x) = x^2 - 5x + 9$
 $gff^{-1}(x) = (7-x)^2 - 5(7-x) + 9$
 $g(x) = (7-x)(7-x) - 35 + 5x + 9$
 $= 49 - 14x + x^2 + 5x - 26$
 $= \underline{x^2 - 9x + 23}$

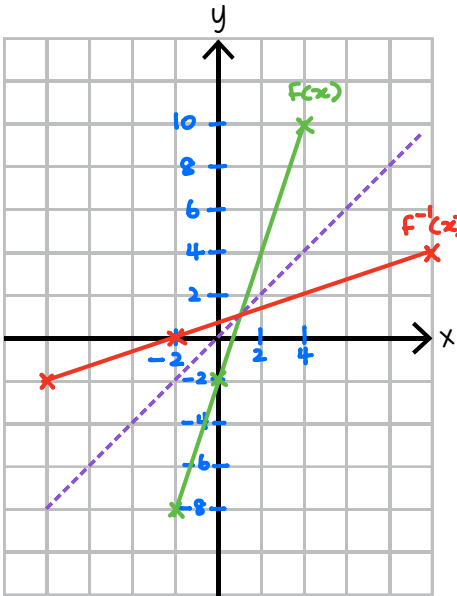
WORKSHEET 6: GRAF FUNGSI SONGSANG * pantulan pada garis $y=x$

lukiskan graf $f(x)$ dan $f^{-1}(x)$ bagi setiap yang berikut

1.

$$f(x) = 3x - 2$$

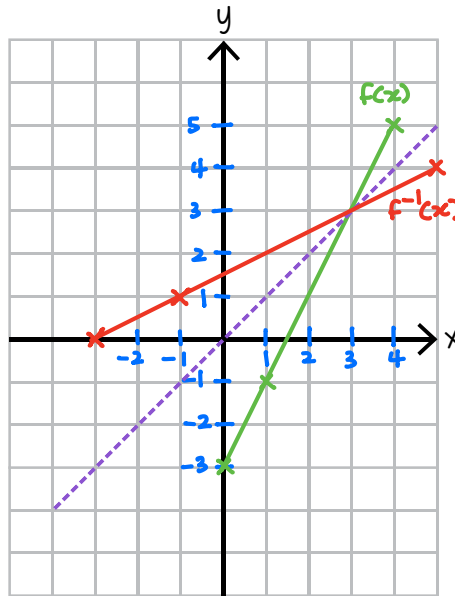
x	-2	0	4
y	-8	-2	10



2.

$$f(x) = 2x - 3$$

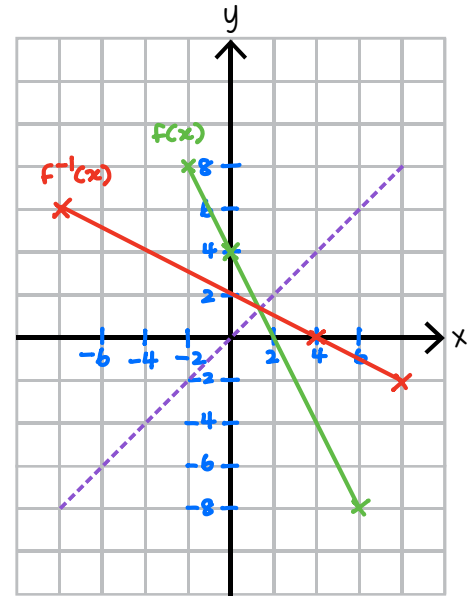
x	0	1	4
y	-3	-1	5



3.

$$f(x) = -2x + 4$$

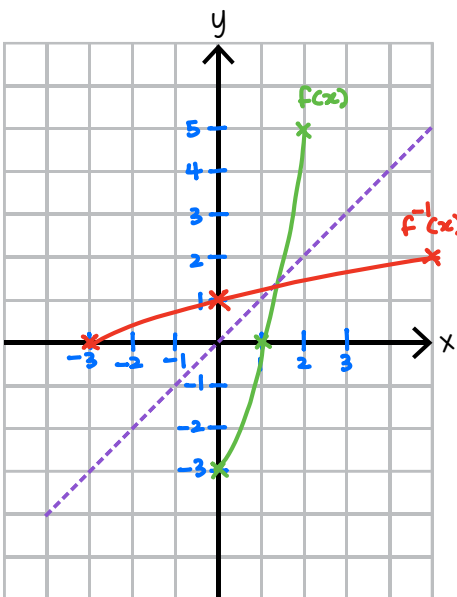
x	-2	0	6
y	8	4	-8



4.

$$f(x) = x^2 + 2x - 3$$

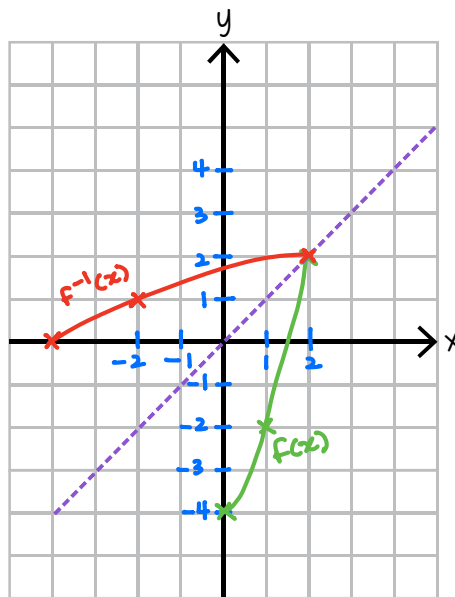
x	0	1	2
y	-3	0	5



5.

$$f(x) = x^2 + x - 4$$

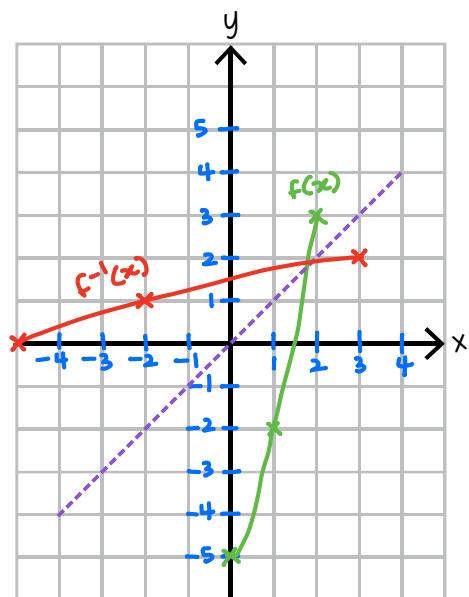
x	0	1	2
y	-4	-2	2



6.

$$f(x) = x^2 + 2x - 5$$

x	0	1	2
y	-5	-2	3



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WORKSHEET 7: FUNGSI SONGSANG

[10]

tentukan $f^{-1}(x)$ bagi setiap yang berikut

1. $f(x) = 3x - 8$

$$y = 3x - 8$$

$$3x = y + 8$$

$$x = \frac{y+8}{3}$$

$$f^{-1}(y) = \frac{y+8}{3}$$

$$f^{-1}(x) = \frac{x+8}{3}$$

2. $f(x) = 4x + 7$

$$y = 4x + 7$$

$$4x = y - 7$$

$$x = \frac{y-7}{4}$$

$$f^{-1}(y) = \frac{y-7}{4}$$

$$f^{-1}(x) = \frac{x-7}{4}$$

3. $f(x) = -2x - 9$

$$y = -2x - 9$$

$$2x = -y - 9$$

$$x = \frac{-y-9}{2}$$

$$f^{-1}(y) = \frac{-y-9}{2}$$

$$f^{-1}(x) = \frac{-x-9}{2}$$

4. $f(x) = \frac{x-5}{3}$

$$y = \frac{x-5}{3}$$

$$3y = x - 5$$

$$x = 3y + 5$$

$$f^{-1}(y) = 3y + 5$$

$$f^{-1}(x) = 3x + 5$$

5. $f(x) = \frac{x+9}{4}$

$$y = \frac{x+9}{4}$$

$$4y = x + 9$$

$$x = 4y - 9$$

$$f^{-1}(y) = 4y - 9$$

$$f^{-1}(x) = 4x - 9$$

6. $f(x) = \frac{2x+3}{5}$

$$y = \frac{2x+3}{5}$$

$$5y = 2x + 3$$

$$2x = 5y - 3$$

$$x = \frac{5y-3}{2}$$

$$f^{-1}(y) = \frac{5y-3}{2}$$

$$f^{-1}(x) = \frac{5x-3}{2}$$

7. $f(x) = \frac{4x-7}{2}$

$$y = \frac{4x-7}{2}$$

$$2y = 4x - 7$$

$$4x = 2y + 7$$

$$x = \frac{2y+7}{4}$$

$$f^{-1}(y) = \frac{2y+7}{4}$$

$$f^{-1}(x) = \frac{2x+7}{4}$$

8. $f(x) = \frac{x+5}{x-2}$

$$y = \frac{x+5}{x-2}$$

$$y(x-2) = x+5$$

$$xy - 2y = x + 5$$

$$xy - x = 2y + 5$$

$$x(y-1) = 2y+5$$

$$x = \frac{2y+5}{y-1}$$

$$f^{-1}(y) = \frac{2y+5}{y-1}$$

$$f^{-1}(x) = \frac{2x+5}{x-1}$$

9. $f(x) = \frac{x-4}{x+3}$

$$y = \frac{x-4}{x+3}$$

$$y(x+3) = x-4$$

$$xy + 3y = x - 4$$

$$xy - x = -3y - 4$$

$$x(y-1) = -3y-4$$

$$x = \frac{-3y-4}{y-1}$$

$$f^{-1}(y) = \frac{-3y-4}{y-1}$$

$$f^{-1}(x) = \frac{-3x-4}{x-1}$$

10. $f(x) = \frac{2x-1}{3x+2}$

$$y = \frac{2x-1}{3x+2}$$

$$y(3x+2) = 2x-1$$

$$3xy + 2y = 2x - 1$$

$$3xy - 2x = -2y - 1$$

$$x(3y-2) = -2y-1$$

$$x = \frac{-2y-1}{3y-2}$$

$$f^{-1}(y) = \frac{-2y-1}{3y-2}$$

$$f^{-1}(x) = \frac{-2x-1}{3x-2}$$

11. $f(x) = \frac{4-3x}{2x-1}$

$$y = \frac{4-3x}{2x-1}$$

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

$$2xy - y = 4 - 3x$$

$$2xy + 3x = y + 4$$

$$x(2y+3) = y+4$$

$$x = \frac{y+4}{2y+3}$$

$$f^{-1}(y) = \frac{y+4}{2y+3}$$

$$f^{-1}(x) = \frac{x+4}{2x+3}$$

12. $f(x) = \frac{5-2x}{4+3x}$

$$y = \frac{5-2x}{4+3x}$$

$$y(4+3x) = 5-2x$$

$$4y + 3xy = 5 - 2x$$

$$3xy + 2x = 5 - 4y$$

$$x(3y+2) = 5-4y$$

$$x = \frac{5-4y}{3y+2}$$

$$f^{-1}(y) = \frac{5-4y}{3y+2}$$

$$f^{-1}(x) = \frac{5-4x}{3x+2}$$

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WORKSHEET 7: FUNGSI SONGSANG

selesaikan setiap yang berikut

13. $f^{-1}(x) = 2x + 7$
 $f(3) = ?$
 $f^{-1}(y) = x$
 $2y + 7 = x$
 $2y = x - 7$
 $y = \frac{x-7}{2}$
 $f(x) = \frac{x-7}{2}$

 $f(3) = \frac{3-7}{2}$
 $= \frac{-4}{2}$
 $= -2$

14. $f^{-1}(x) = 3x - 8$
 $f(7) = ?$
 $f^{-1}(y) = x$
 $3y - 8 = x$
 $3y = x + 8$
 $y = \frac{x+8}{3}$
 $f(x) = \frac{x+8}{3}$

 $f(7) = \frac{7+8}{3}$
 $= \frac{15}{3}$
 $= 5$

15. $f^{-1}(x) = 5 - 4x$
 $f(1) = ?$
 $f^{-1}(y) = x$
 $5 - 4y = x$
 $4y = 5 - x$
 $y = \frac{5-x}{4}$
 $f(x) = \frac{5-x}{4}$

 $f(1) = \frac{5-1}{4}$
 $= \frac{4}{4}$
 $= 1$

16. $f^{-1}(x) = \frac{6}{x-1}$
 $f(-3) = ?$
 $f^{-1}(y) = x$
 $\frac{6}{y-1} = x$
 $6 = x(y-1)$
 $xy - x = 6$
 $xy = 6 + x$
 $y = \frac{6+x}{x}$
 $f(x) = \frac{6+x}{x}$

 $f(-3) = \frac{6+(-3)}{-3}$
 $= \frac{3}{-3}$
 $= -1$

17. $f^{-1}(x) = \frac{9}{x-4}$
 $f(2) = ?$
 $f^{-1}(y) = x$
 $\frac{9}{y-4} = x$
 $9 = xy - 4x$
 $xy = 4x + 9$
 $y = \frac{4x+9}{x}$
 $f(x) = \frac{4x+9}{x}$

 $f(2) = \frac{4(2)+9}{2}$
 $= \frac{17}{2}$

18. $f^{-1}(x) = \frac{3x-1}{5}$
 $f(-2) = ?$
 $f^{-1}(y) = x$
 $\frac{3y-1}{5} = x$
 $3y-1 = 5x$
 $3y = 5x+1$
 $y = \frac{5x+1}{3}$
 $f(x) = \frac{5x+1}{3}$

 $f(-2) = \frac{5(-2)+1}{3}$
 $= \frac{-10+1}{3}$
 $= \frac{-9}{3}$
 $= -3$

19. $f^{-1}(x) = \frac{7-4x}{2}$
 $f(5) = ?$
 $f^{-1}(y) = x$
 $\frac{7-4y}{2} = x$
 $7-4y = 2x$
 $-4y = 2x-7$
 $4y = -2x+7$
 $y = \frac{-2x+7}{4}$
 $f(x) = \frac{-2x+7}{4}$

 $f(5) = \frac{-2(5)+7}{4}$
 $= \frac{-10+7}{4}$
 $= \frac{-3}{4}$

20. $f(x) = 2x - 3$
 $g(x) = x + 8$
 $fg^{-1}(10) = ?$
 $y = x + 8$
 $x = y - 8$
 $g^{-1}(y) = y - 8$
 $g^{-1}(x) = x - 8$
 $fg^{-1}(x) = 2(x-8) - 3$
 $= 2x - 16 - 3$
 $= 2x - 19$
 $fg^{-1}(10) = 2(10) - 19$
 $= 20 - 19$
 $= 1$

21. $f(x) = 5x + 2$
 $g(x) = x - 3$
 $fg^{-1}(4) = ?$
 $y = x - 3$
 $x = y + 3$
 $g^{-1}(y) = y + 3$
 $g^{-1}(x) = x + 3$
 $fg^{-1}(x) = 5(x+3) + 2$
 $= 5x + 15 + 2$
 $= 5x + 17$
 $fg^{-1}(4) = 5(4) + 17$
 $= 20 + 17$
 $= 37$

22. $f(x) = 4x - 10$
 $g(x) = 2x - 9$
 $fg^{-1}(-6) = ?$
 $y = 2x - 9$
 $2x = y + 9$
 $x = \frac{y+9}{2}$
 $g^{-1}(y) = \frac{y+9}{2}$
 $g^{-1}(x) = \frac{x+9}{2}$
 $fg^{-1}(x) = 4\left(\frac{x+9}{2}\right) - 10$
 $= 2(x+9) - 10$
 $= 2x + 18 - 10$
 $= 2x + 8$
 $fg^{-1}(-6) = 2(-6) + 8$
 $= -12 + 8$
 $= -4$

23. $f(x) = 6x - 14$
 $g(x) = 3x - 7$
 $fg^{-1}(-5) = ?$
 $y = 3x - 7$
 $3x = y + 7$
 $x = \frac{y+7}{3}$
 $g^{-1}(y) = \frac{y+7}{3}$
 $g^{-1}(x) = \frac{x+7}{3}$
 $fg^{-1}(x) = 6\left(\frac{x+7}{3}\right) - 14$
 $= 2(x+7) - 14$
 $= 2x + 14 - 14$
 $= 2x$
 $fg^{-1}(-5) = 2(-5)$
 $= -10$

24. $f(x) = 8x + 6$
 $g(x) = 5 - 4x$
 $fg^{-1}(7) = ?$
 $y = 5 - 4x$
 $4x = 5 - y$
 $x = \frac{5-y}{4}$
 $g^{-1}(y) = \frac{5-y}{4}$
 $g^{-1}(x) = \frac{5-x}{4}$
 $fg^{-1}(x) = 8\left(\frac{5-x}{4}\right) + 6$
 $= 2(5-x) + 6$
 $= 10 - 2x + 6$
 $= 16 - 2x$
 $fg^{-1}(7) = 16 - 2(7)$
 $= 16 - 14$
 $= 2$

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WORKSHEET 7: FUNGSI SONGSANG

+ tunjukkan : $fg(x) = x$
 $gf(x) = x$

soalan 25, 26 dan 27: tentukan samada fungsi berikut songsang antara satu sama lain

25. $f(x) = 3x - 1$
 $g(x) = \frac{x+1}{3}$

① $fg(x) = 3\left(\frac{x+1}{3}\right) - 1$
 $= x + 1 - 1$
 $= x$

② $gf(x) = \frac{(3x-1)+1}{3}$
 $= \frac{3x}{3}$
 $= x$

$\therefore fg(x) = gf(x) = x$
f(x) & g(x)
fungsi songsang
antara satu sama lain.

26. $f(x) = 2 - 5x$
 $g(x) = \frac{-x+2}{5}$

① $fg(x) = 2 - 5\left(\frac{-x+2}{5}\right)$
 $= 2 - (-x+2)$
 $= 2 + x - 2$
 $= x$

② $gf(x) = \frac{-(2-5x)+2}{5}$
 $= \frac{-2+5x+2}{5}$
 $= \frac{5x}{5}$
 $= x$

$\therefore fg(x) = gf(x) = x$

27. $f(x) = \frac{2}{x-3}$
 $g(x) = \frac{3x+2}{x}$

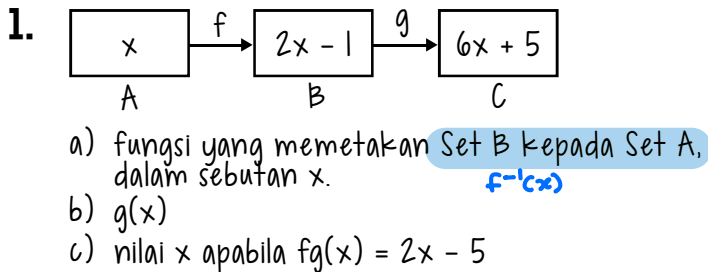
① $fg(x) = \frac{2}{\frac{3x+2}{x} - 3}$
 $= \frac{2}{\frac{3x+2-3x}{x}} = \frac{2}{\frac{2}{x}}$
 $= 2\left(\frac{x}{2}\right)$
 $= x$

② $gf(x) = \frac{3\left(\frac{2}{x-3}\right) + 2}{\frac{2}{x-3}}$
 $= \frac{\frac{6}{x-3} + 2}{\frac{2}{x-3}}$
 $= \frac{\frac{6+2(x-3)}{x-3}}{\frac{2}{x-3}}$
 $= \frac{6+2x-6}{2} = \frac{2x}{2} = x$

$\therefore fg(x) = gf(x) = x$

WORKSHEET 8: FUNGSI

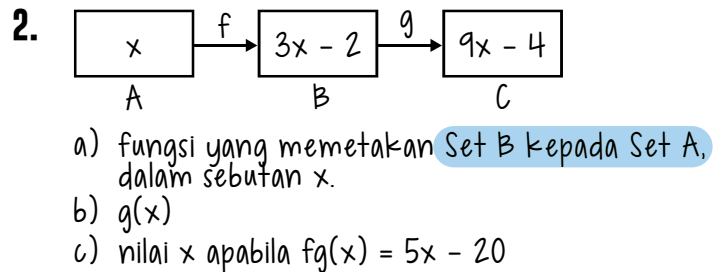
selesaikan setiap yang berikut



a) $f(x) = 2x - 1$
 $y = 2x - 1$
 $2x = y + 1$
 $x = \frac{y+1}{2}$
 $f^{-1}(y) = \frac{y+1}{2}$
 $f^{-1}(x) = \frac{x+1}{2}$

b) $gf(x) = 6x + 5$
 $gf^{-1}(x) = 6\left(\frac{x+1}{2}\right) + 5$
 $g(x) = 3(x+1) + 5$
 $= 3x + 3 + 5$
 $= 3x + 8$

c) $fg(x) = 2x - 5$
 $2(3x+8) - 1 = 2x - 5$
 $6x + 16 - 1 = 2x - 5$
 $4x = -5 - 15$
 $4x = -20$
 $x = -5$



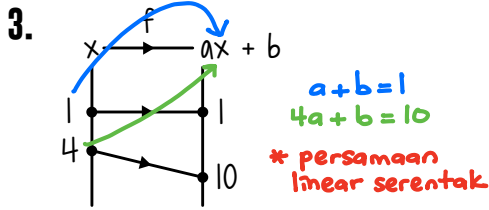
a) $f(x) = 3x - 2$
 $y = 3x - 2$
 $3x = y + 2$
 $x = \frac{y+2}{3}$
 $f^{-1}(y) = \frac{y+2}{3}$
 $f^{-1}(x) = \frac{x+2}{3}$

b) $gf(x) = 9x - 4$
 $gf^{-1}(x) = 9\left(\frac{x+2}{3}\right) - 4$
 $g(x) = 3(x+2) - 4$
 $= 3x + 6 - 4$
 $= 3x + 2$

c) $fg(x) = 5x - 20$
 $3(3x+2) - 2 = 5x - 20$
 $9x + 6 - 2 = 5x - 20$
 $9x + 4 = 5x - 20$
 $4x = -24$
 $x = -6$

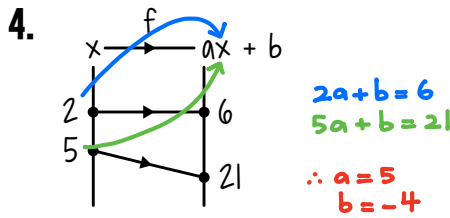
WORKSHEET 8: FUNGSI

selesaikan setiap yang berikut



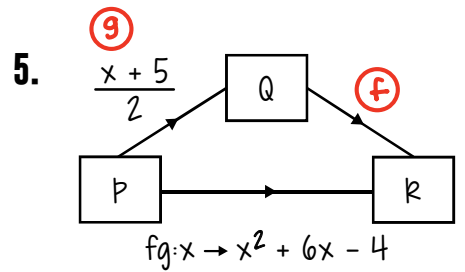
- a) nilai a dan b
b) $f^{-1}(x)$

b) $f(x) = 3x - 2$
 $y = 3x - 2$
 $3x = y + 2$
 $x = \frac{y+2}{3}$
 $f^{-1}(y) = \frac{y+2}{3}$
 $f^{-1}(x) = \frac{x+2}{3}$



- a) nilai a dan b
b) $f^{-1}(x)$

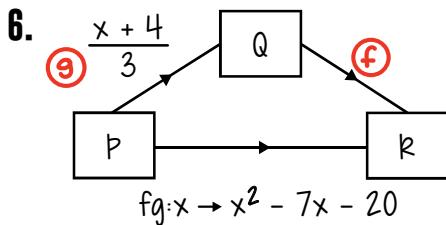
b) $f(x) = 5x - 4$
 $y = 5x - 4$
 $5x = y + 4$
 $x = \frac{y+4}{5}$
 $f^{-1}(y) = \frac{y+4}{5}$
 $f^{-1}(x) = \frac{x+4}{5}$



cari fungsi yang memetakan set Q kepada set R.

① $g(x) = \frac{x+5}{2}$
 $y = \frac{x+5}{2}$
 $2y = x+5$
 $x = 2y-5$
 $g^{-1}(y) = 2y-5$
 $g^{-1}(x) = 2x-5$

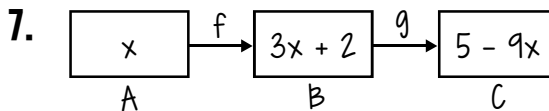
② $fg(x) = x^2 + 6x - 4$
 $fgg^{-1}(x) = (2x-5)^2 + 6(2x-5) - 4$
 $f(x) = 4x^2 - 20x + 25 + 12x - 30 - 4$
 $= 4x^2 - 8x - 9$



cari fungsi yang memetakan set Q kepada set R.

① $g(x) = \frac{x+4}{3}$
 $y = \frac{x+4}{3}$
 $3y = x+4$
 $x = 3y-4$
 $g^{-1}(y) = 3y-4$
 $g^{-1}(x) = 3x-4$

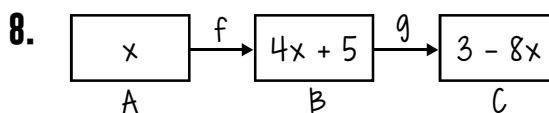
② $fg(x) = x^2 - 7x - 20$
 $fgg^{-1}(x) = (3x-4)^2 - 7(3x-4) - 20$
 $f(x) = 9x^2 - 24x + 16 - 21x + 28 - 20$
 $= 9x^2 - 45x + 24$



- a) fungsi yang memetakan Set B kepada Set A, dalam sebutan x.
b) $g(x)$
c) nilai x apabila $f^{-1}g(x) = 2x - 3$

b) $gf(x) = 5 - 9x$
 $gff^{-1}(x) = 5 - 9(\frac{x-2}{3})$
 $g(x) = 5 - 3(x-2)$
 $= 5 - 3x + 6$
 $= 11 - 3x$

c) $\frac{g(x)-2}{3} = 2x-3$
 $11-3x-2 = 3(2x-3)$
 $-3x+9 = 6x-9$
 $-9x = -18$
 $x = 2$



- a) fungsi yang memetakan Set B kepada Set A, dalam sebutan x.
b) $g(x)$
c) nilai x apabila $f^{-1}g(x) = -x + 2$

b) $gf(x) = 3 - 8x$
 $gff^{-1}(x) = 3 - 8(\frac{x-5}{4})$
 $g(x) = 3 - 2(x-5)$
 $= 3 - 2x + 10$
 $= 13 - 2x$

c) $\frac{g(x)-5}{4} = -x+2$
 $13-2x-5 = 4(-x+2)$
 $8-2x = -4x+8$
 $-2x+4x = 8-8$
 $2x = 0$
 $x = 0$

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