



Warm Up Grade 8

Date: Jan 6

Quiz Tomorrow Similar to this

1) Use substitution for $y = 3x - 4$ using $x = -2, -1, 0, 1, 2$ (Show work)

Input	Output $3x - 4$	Ordered Pairs (x, y)
→ -2	-10	$(-2, -10)$
→ -1	-7	$(-1, -7)$
→ 0	-4	$(0, -4)$
1	-1	$(1, -1)$
2	2	$(2, 2)$

$$\begin{array}{l}
 x = -2 \\
 3x - 4 \\
 3(-2) - 4 \\
 -6 - 4 \\
 -10 \\
 \hline
 x = -1 \\
 3x - 4 \\
 3(-1) - 4 \\
 -3 - 4 \\
 -7 \\
 \hline
 x = 0 \\
 3x - 4 \\
 3(0) - 4 \\
 0 - 4 \\
 -4
 \end{array}$$

4. Copy and complete ea
table of values.

a) $y = x + 1$

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

$$\begin{array}{c}
 x=1 \\
 (x)+1 \\
 1+1 \\
 2
 \end{array}
 \left\{
 \begin{array}{c}
 x=2 \\
 x+1 \\
 2+1 \\
 3
 \end{array}
 \right\}
 \begin{array}{c}
 x=3 \\
 x+1 \\
 3+1 \\
 4
 \end{array}$$

b) $y = x + 3$

x	y
1	4
2	5
3	6
4	7
5	8

$$\begin{array}{c}
 x=1 \\
 x+3 \\
 1+3 \\
 4
 \end{array}
 \left\{
 \begin{array}{c}
 x=2 \\
 x+3 \\
 2+3 \\
 5
 \end{array}
 \right\}
 \begin{array}{c}
 x=3 \\
 x+3 \\
 3+3 \\
 6
 \end{array}$$

c) $y = 2x$

x	y
1	2
2	4
3	6
4	8
5	10

$$\begin{array}{c}
 x=1 \\
 2x \\
 2(1) \\
 2
 \end{array}
 \left\{
 \begin{array}{c}
 x=2 \\
 2x \\
 2(2) \\
 4
 \end{array}
 \right\}
 \begin{array}{c}
 x=3 \\
 2x \\
 2(3) \\
 6
 \end{array}$$

5. Make a table of values for each relation.

a) $y = 2x + 1$

b) $y = 2x - 1$

c) $y = -2x + 1$

a)

x	y
1	3
2	5
3	7
4	9
5	11

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

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

$x=3$
 $2x+1$
 $2(3)+1$
 $6+1$
 7

b)

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

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

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

$x=3$
 $2x-1$
 $2(3)-1$
 $6-1$
 5

c)

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

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

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

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

7. Melanie earns \$7 per hour when she baby-sits. An equation for this relation is $w = 7h$, where h represents the number of hours and w represents Melanie's wage in dollars.

a) Use the equation to create a table of values.

b) In one week, Melanie earned \$105. How many hours did she baby-sit?

b)

$$w = 7h$$

$$105 = 7h$$

$$\div 7 \quad \div 7$$

$$\boxed{15 = h}$$

It will take
15 weeks to
earn \$105.

$$y = 7x$$

$$W = 7h$$

x h	y w
1	7
2	14
3	21
4	28
5	35

$$h = 1$$

$$7(1) = 7$$

$$h = 2$$

$$7(2) = 14$$

$$h = 3$$

$$7(3) = 21$$

8. Copy and complete each table

a) $y = x + 2$

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

$$\begin{aligned} x &= -3 & x &= -2 & x &= -1 \\ y &= x + 2 & y &= x + 2 & y &= x + 2 \\ &= (-3) + 2 & &= (-2) + 2 & &= (-1) + 2 \\ &= -1 & &= 0 & &= 1 \end{aligned}$$

d) $y = x + 4$

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

$$\begin{aligned} -3 + 4 &= 1 \\ -2 + 4 &= 2 \\ -1 + 4 &= 3 \end{aligned}$$

b) $y = x - 3$

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

$$\begin{aligned} x &= -3 & x &= -2 & x &= -1 \\ y &= x - 3 & y &= x - 3 & y &= x - 3 \\ &= (-3) - 3 & &= (-2) - 3 & &= (-1) - 3 \\ &= (-3) + (-3) & &= (-2) + (-3) & &= (-1) + (-3) \\ &= -6 & &= -5 & &= -4 \end{aligned}$$

9. Make a table of values for each relation.

a) $y = -2x + 3$

b) $y = -5x - 4$

c) $y = 8x - 3$

a) $y = -2x + 3$

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

$$\begin{aligned} x &= 1 & x &= 2 & x &= 3 \\ y &= -2x + 3 & y &= -2x + 3 & y &= -2x + 3 \\ &= -2(1) + 3 & &= -2(2) + 3 & &= -2(3) + 3 \\ &= -2 + 3 & &= -4 + 3 & &= -6 + 3 \\ &= 1 & &= -1 & &= -3 \end{aligned}$$

b) $y = -5x - 4$

x	y
1	-9
2	-14
3	-19
4	-24
5	-29

$$\begin{aligned} x &= 1 & x &= 2 & x &= 3 \\ y &= -5x - 4 & y &= -5x - 4 & y &= -5x - 4 \\ &= -5(1) - 4 & &= -5(2) - 4 & &= -5(3) - 4 \\ &= -5 - 4 & &= -10 - 4 & &= -15 - 4 \\ &= (-5) + (-4) & &= -10 + (-4) & &= -15 + (-4) \\ &= -9 & &= -14 & &= -19 \end{aligned}$$

c) $y = 8x - 3$

x	y
1	5
2	13
3	21
4	29
5	37

$$\begin{aligned} x &= 1 & x &= 2 & x &= 3 \\ y &= 8x - 3 & y &= 8x - 3 & y &= 8x - 3 \\ &= 8(1) - 3 & &= 8(2) - 3 & &= 8(3) - 3 \\ &= 8 - 3 & &= 16 - 3 & &= 24 - 3 \\ &= 5 & &= 13 & &= 21 \end{aligned}$$

Class/Homework

Instructions:

1. Use substitution to calculate y for each value of x .
2. Show all your work on a separate sheet of paper.
3. Check your answers with your teacher or a peer.

1. $y = 2x + 3$

Complete the table for $x = -2, -1, 0, 1, 2$.

x	-2	-1	0	1	2
y					

2. $y = 3x - 4$

Complete the table for $x = -3, -1, 0, 2, 4$. Show work for each entry here since no pattern in x .

x	-3	-1	0	2	4
y					

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

Complete the table for $x = -4, -2, 0, 2, 4$.

x	-4	-2	0	2	4
y	3				

$$\begin{array}{l}
 x = -4 \\
 \frac{-4}{2} + 5 \\
 -2 + 5 \\
 3
 \end{array}$$

means $\frac{(\quad)}{2} + 5$

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

Complete the table for $x = -6, -3, 0, 3, 6$.

x	-6	-3	0	3	6
y					

5. $y = -2x + 7$

Complete the table for $x = -2, -1, 0, 1, 2$.

x	-2	-1	0	1	2
y					

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

Complete the table for $x = -8, -4, 0, 4, 8$.

x	-8	-4	0	4	8
y					

7. $y = 4x - 5$

Complete the table for $x = -2, -1, 0, 1, 2$.

x	-2	-1	0	1	2
y					

8. $y = 5 - \frac{x}{5}$

Complete the table for $x = -10, -5, 0, 5, 10$.

x	-10	-5	0	5	10
y					

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

Complete the table for $x = -6, -3, 0, 3, 6$.

x	-6	-3	0	3	6
y					

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

Complete the table for $x = -4, -2, 0, 2, 4$.

x	-4	-2	0	2	4
y					

Solutions to Worksheet

Answer Key

1. $y = 2x + 3$

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

Calculations:

- For $x = -2$, $y = 2(-2) + 3 = -4 + 3 = -1$.
- For $x = -1$, $y = 2(-1) + 3 = -2 + 3 = 1$.
- For $x = 0$, $y = 2(0) + 3 = 0 + 3 = 3$.
- For $x = 1$, $y = 2(1) + 3 = 2 + 3 = 5$.
- For $x = 2$, $y = 2(2) + 3 = 4 + 3 = 7$.

2. $y = 3x - 4$

x	-3	-1	0	2	4
y	-13	-7	-4	2	8

Calculations:

- For $x = -3$, $y = 3(-3) - 4 = -9 - 4 = -13$.
- For $x = -1$, $y = 3(-1) - 4 = -3 - 4 = -7$.
- For $x = 0$, $y = 3(0) - 4 = 0 - 4 = -4$.
- For $x = 2$, $y = 3(2) - 4 = 6 - 4 = 2$.
- For $x = 4$, $y = 3(4) - 4 = 12 - 4 = 8$.

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

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

Calculations:

- For $x = -4$, $y = \frac{-4}{2} + 5 = -2 + 5 = 3$.
- For $x = -2$, $y = \frac{-2}{2} + 5 = -1 + 5 = 4$.
- For $x = 0$, $y = \frac{0}{2} + 5 = 0 + 5 = 5$.
- For $x = 2$, $y = \frac{2}{2} + 5 = 1 + 5 = 6$.
- For $x = 4$, $y = \frac{4}{2} + 5 = 2 + 5 = 7$.

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

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

Calculations:

- For $x = -6$, $y = \frac{-6}{3} - 2 = -2 - 2 = -4$.
- For $x = -3$, $y = \frac{-3}{3} - 2 = -1 - 2 = -3$.
- For $x = 0$, $y = \frac{0}{3} - 2 = 0 - 2 = -2$.
- For $x = 3$, $y = \frac{3}{3} - 2 = 1 - 2 = -1$.
- For $x = 6$, $y = \frac{6}{3} - 2 = 2 - 2 = 0$.

5. $y = -2x + 7$

x	-2	-1	0	1	2
y	11	9	7	5	3

Calculations:

- For $x = -2$, $y = -2(-2) + 7 = 4 + 7 = 11$.
- For $x = -1$, $y = -2(-1) + 7 = 2 + 7 = 9$.
- For $x = 0$, $y = -2(0) + 7 = 0 + 7 = 7$.
- For $x = 1$, $y = -2(1) + 7 = -2 + 7 = 5$.
- For $x = 2$, $y = -2(2) + 7 = -4 + 7 = 3$.

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

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

Calculations:

- For $x = -8$, $y = -\frac{-8}{4} + 3 = 2 + 3 = 5$.
- For $x = -4$, $y = -\frac{-4}{4} + 3 = 1 + 3 = 4$.
- For $x = 0$, $y = -\frac{0}{4} + 3 = 0 + 3 = 3$.
- For $x = 4$, $y = -\frac{4}{4} + 3 = -1 + 3 = 2$.
- For $x = 8$, $y = -\frac{8}{4} + 3 = -2 + 3 = 1$.

7. $y = 4x - 5$

x	-2	-1	0	1	2
y	-13	-9	-5	-1	3

Calculations:

- For $x = -2$, $y = 4(-2) - 5 = -8 - 5 = -13$.
- For $x = -1$, $y = 4(-1) - 5 = -4 - 5 = -9$.
- For $x = 0$, $y = 4(0) - 5 = 0 - 5 = -5$.
- For $x = 1$, $y = 4(1) - 5 = 4 - 5 = -1$.
- For $x = 2$, $y = 4(2) - 5 = 8 - 5 = 3$.

8. $y = 5 - \frac{x}{5}$

x	-10	-5	0	5	10
y	7	6	5	4	3

Calculations:

- For $x = -10$, $y = 5 - \frac{-10}{5} = 5 - (-2) = 5 + 2 = 7$.
- For $x = -5$, $y = 5 - \frac{-5}{5} = 5 - (-1) = 5 + 1 = 6$.
- For $x = 0$, $y = 5 - \frac{0}{5} = 5 - 0 = 5$.
- For $x = 5$, $y = 5 - \frac{5}{5} = 5 - 1 = 4$.
- For $x = 10$, $y = 5 - \frac{10}{5} = 5 - 2 = 3$.

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

x	-6	-3	0	3	6
y	-3	-1	1	3	5

Calculations:

- For $x = -6$, $y = \frac{2(-6)}{3} + 1 = \frac{-12}{3} + 1 = -4 + 1 = -3$.
- For $x = -3$, $y = \frac{2(-3)}{3} + 1 = \frac{-6}{3} + 1 = -2 + 1 = -1$.
- For $x = 0$, $y = \frac{2(0)}{3} + 1 = \frac{0}{3} + 1 = 0 + 1 = 1$.
- For $x = 3$, $y = \frac{2(3)}{3} + 1 = \frac{6}{3} + 1 = 2 + 1 = 3$.
- For $x = 6$, $y = \frac{2(6)}{3} + 1 = \frac{12}{3} + 1 = 4 + 1 = 5$.

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

x	-4	-2	0	2	4
y	10	7	4	1	-2

Calculations:

- For $x = -4$, $y = -\frac{3(-4)}{2} + 4 = -\frac{-12}{2} + 4 = 6 + 4 = 10$.
- For $x = -2$, $y = -\frac{3(-2)}{2} + 4 = -\frac{-6}{2} + 4 = 3 + 4 = 7$.
- For $x = 0$, $y = -\frac{3(0)}{2} + 4 = -0 + 4 = 4$.
- For $x = 2$, $y = -\frac{3(2)}{2} + 4 = -\frac{6}{2} + 4 = -3 + 4 = 1$.
- For $x = 4$, $y = -\frac{3(4)}{2} + 4 = -\frac{12}{2} + 4 = -6 + 4 = -2$.