



Warm Up Grade 8

Oct. 24, 2016

1) Evaluate the expression $5x + 20$ for $x = 6$

$$\begin{aligned} & 5(6) + 20 \\ & \text{multiple} \\ & = 30 + 20 \\ & = 50 \end{aligned}$$

2) Evaluate the expression $4x - 7$ for $x = 1$, then for $x = 2$ and $x = 4$

$$\begin{aligned} & 4(x) - 7 \\ & = 4(1) - 7 \quad \text{where } x = 1 \\ & = 4 - 7 \\ & = -3 \end{aligned}$$

$$\begin{aligned} & \text{a) } x = 2 \\ & 4(x) - 7 \\ & = 4(2) - 7 \\ & = 8 - 7 \\ & = 1 \end{aligned}$$

$$4x - 7$$

where $x = 4$

$$\begin{aligned} & = 4(4) - 7 \\ & = 16 - 7 \\ & = 9 \end{aligned}$$

Using Tables



You can use tables and charts to help you solve equations.

Sometimes you will be given the equations (output) and you will be asked to complete the table or find the missing numbers. Other times you will be given the table and you will be able to figure out the equations.

Input is "x"

$2(x) + 4$

Complete the following tables:

Ordered pairs are (x, y)

| Input x | Output $2x + 4$ | Ordered Pairs |
|---------|--------------------|---------------|
| 1 | 6 $\downarrow +2$ | (1, 6) |
| 2 | 8 $\downarrow +2$ | (2, 8) |
| 3 | 10 $\downarrow +2$ | (3, 10) |
| 4 | 12 $\downarrow +2$ | (4, 12) |
| 5 | 14 $\downarrow +2$ | (5, 14) |

As x input increases by 1 the output increases by 2

Show work

Input Output

$$\begin{array}{l}
 x=1 \\
 2(x)+4 \\
 2(1)+4 \\
 2+4 \\
 6
 \end{array}
 \left.
 \begin{array}{l}
 x=2 \\
 2(x)+4 \\
 =2(2)+4 \\
 =4+4 \\
 =8
 \end{array}
 \right\}
 \begin{array}{l}
 x=3 \\
 2(x)+4 \\
 2(3)+4 \\
 6+4 \\
 10
 \end{array}$$

Describing the relation

As the input, x, increases by 1, the output decreases by 3

| Input x | Output $-3x + 2$ | Ordered Pairs |
|---------|---------------------|---------------|
| 1 | -1 $\downarrow -3$ | (1, -1) |
| 2 | -4 $\downarrow -3$ | (2, -4) |
| 3 | -7 $\downarrow -3$ | (3, -7) |
| 4 | -10 $\downarrow -3$ | (4, -10) |
| 5 | -13 $\downarrow -3$ | (5, -13) |

+1

$$\begin{array}{l}
 -3(x) + 2 \\
 \text{For } x=1 \\
 -3(1) + 2 \\
 -3 + 2 \\
 -1
 \end{array}
 \left.
 \begin{array}{l}
 \text{For } x=2 \\
 -3(2) + 2 \\
 -6 + 2 \\
 -4
 \end{array}
 \right\}
 \begin{array}{l}
 \text{For } x=3 \\
 -3(3) + 2 \\
 -9 + 2 \\
 -7
 \end{array}$$

Using Tables

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Sometimes you will be given the equations (output) and you will be asked to complete the table or find the missing numbers. Other times you will be given the table and you will be able to figure out the equations.

Complete the following tables: _____

| Input x | Output $2x + 4$ | Ordered Pairs |
|------------|--------------------|---------------|
| 1 | 6 | (1, 6) |
| 2 | 8 | (2, 8) |
| 3 | 10 | (3, 10) |
| 4 | 12 | (4, 12) |
| 5 | 14 | (5, 14) |

$2 \times 1 + 4$
 $2 \times 2 + 4$
 $2 \times 3 + 4$

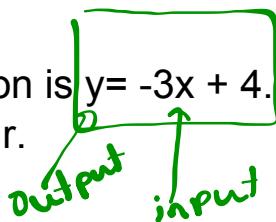
| Input x | Output $-3x + 2$ | Ordered Pairs |
|------------|---------------------|---------------|
| 1 | -1 | (1, -1) |
| 2 | -4 | (2, -4) |
| 3 | -7 | (3, -7) |
| 4 | -10 | (4, -10) |
| 5 | -13 | (5, -13) |

$-3 \times 1 + 2$

x y



The equation is $y = -3x + 4$. Find the missing number in each ordered pair.



a) $(-2, \underline{\quad})$

Fill in $x = -2$
 into $y = -3(x) + 4$
 $= -3(-2) + 4$
 $= +6 + 4$
 $= +10$

$(-2, +10)$

b) $(5, \underline{\quad})$

given " $x = 5$ "
 $y = -3(x) + 4$
 $= -3(5) + 4$
 $= -15 + 4$
 $= -11$

$(5, -11)$



How would you do this? What is missing?

c) $(\underline{\quad}, 5)$

given
 y
 fill in
 $y = 5$

$y = -3(x) + 4$
 \downarrow
 $5 = -3x + 4$

was not taught solving equations

Class/Homework

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make chart and use relation to fill in

4(b, ●), #5(a,c), #6, #7, #8, #11, #12 (Like a test question)

1) $w = 7h$

| h | w |
|---|---|
| 0 | 0 |
| 1 | 7 |
| 2 | |
| 3 | |
| 4 | |

(6)

| x | y |
|---|----|
| 0 | -7 |
| 1 | 2 |
| 2 | 11 |
| 3 | 20 |
| 4 | 29 |
| 5 | 38 |

$n=0$
 $7(h)$
 $7(0)$
 0

$n=1$
 $7(1)$
 7

$+1$
 $+9$
 $+9$
 $+9$
 $+9$
 $+9$

x increases by 1,
y will increase by +9