



## Warm Up Grade 8



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

$$\begin{array}{l}
 5 \downarrow (6) + 20 \\
 \underline{30} + 20 \\
 \boxed{50}
 \end{array}$$

$$\begin{array}{l}
 x, y \\
 (6, 50)
 \end{array}$$

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

$$\begin{array}{l}
 x = 1 \\
 4x - 7 \\
 4 \downarrow (1) - 7 \\
 \underline{4} - 7 \\
 (-3) \\
 (1, -3) \\
 \begin{array}{l} x \\ y \end{array}
 \end{array}$$

$$\begin{array}{l}
 x = 2 \\
 4x - 7 \\
 4 \downarrow (2) - 7 \\
 \underline{8} - 7 \\
 1 \\
 (2, 1) \\
 \begin{array}{l} x, y \end{array}
 \end{array}$$

$$\begin{array}{l}
 x = 4 \\
 4x - 7 \\
 4 \downarrow (4) - 7 \\
 \underline{16} - 7 \\
 9 \\
 (4, 9)
 \end{array}$$

# Worksheet Solutions

**1a)**  $3b = 3(5) = 15$    
 **b)**  $6a = 6(2) = 12$    
 **c)**  $2c = 2(7) = 14$    
 **d)**  $4b = 4(5) = 20$    
 **e)**  $3c = 3(7) = 21$

**f)**  $2b+3 = 2(5)+3 = 10+3 = 13$    
 **g)**  $3a+1 = 3(2)+1 = 6+1 = 7$    
 **h)**  $2c-3 = 2(7)-3 = 14-3 = 11$    
 **i)**  $5a+7 = 5(2)+7 = 10+7 = 17$    
 **j)**  $9b = 9(5) = 45$

**k)**  $a+b = 2+5 = 7$    
**l)**  $a+c = 2+7 = 9$    
**m)**  $c-b = 7-5 = 2$    
**n)**  $a+b+c = 2+5+7 = 14$    
**o)**  $-a = -(2) = -2$

**p)**  $3a+2b = 3(3)+2(5) = 9+10 = 19$    
**q)**  $5c+2a = 5(7)+2(2) = 35+4 = 39$    
**r)**  $3b+2c = 3(5)+2(7) = 15+14 = 29$    
**s)**  $9a-2b = 9(2)-2(5) = 18-10 = 8$    
**t)**  $-3c = -3(7) = -21$

**2a)**  $3b = 3(4) = 12$    
**b)**  $6a = 6(3) = 18$    
**c)**  $2c = 2(10) = 20$    
**d)**  $4b = 4(4) = 16$    
**e)**  $3c = 3(10) = 30$

**f)**  $2b+3 = 2(4)+3 = 8+3 = 11$    
**g)**  $3a+1 = 3(3)+1 = 9+1 = 10$    
**h)**  $2c-3 = 2(10)-3 = 20-3 = 17$    
**i)**  $5a+7 = 5(3)+7 = 15+7 = 22$    
**j)**  $9b = 9(4) = 36$

**k)**  $a+b = 3+4 = 7$    
**l)**  $a+c = 3+10 = 13$    
**m)**  $c-b = 10-4 = 6$    
**n)**  $a+b+c = 3+4+10 = 17$    
**o)**  $-a = -3$

**p)**  $3a+2b = 3(3)+2(4) = 9+8 = 17$    
**q)**  $5c+2a = 5(10)+2(3) = 50+6 = 56$    
**r)**  $3b+2c = 3(4)+2(10) = 12+20 = 32$    
**s)**  $9a-2b = 9(3)-2(4) = 27-8 = 19$

**Step 2)**

**4)**  $a) \begin{cases} x+y=7 \\ y+2=7 \end{cases}$    
**b)**  $\begin{cases} x+y=6 \\ x+y=8 \end{cases}$    
**c)**  $\begin{cases} x-y=2 \\ z-x=2 \end{cases}$    
**d)**  $\begin{cases} 2x+3y=16 \\ 2x+3y=16 \end{cases}$

**5)**  $10n+30 = \text{Cost to rent}$  when  $n$  is # of hours to rent

a) $10(1)+30 = 10+30 = 40$	b) $10(3)+30 = 30+30 = 60$	c) $10(4)+30 = 40+30 = 70$
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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.

Complete the following tables: \_\_\_\_\_

Ordered pairs are (x, y)

Input x	Output $2x + 4$	Ordered Pairs <i>In, Out</i> x, y
→ 1	6	(1, 6)
→ 2	8	(2, 8)
→ 3	10	(3, 10)
4	12	(4, 12)
5	14	(5, 14)

$x = 1$   
 $2x + 4$   
 $2(1) + 4$   
 $2 + 4$   
 $6$

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

$x = 3$   
 $2x + 4$   
 $2(3) + 4$   
 $6 + 4$   
 $10$

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)

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

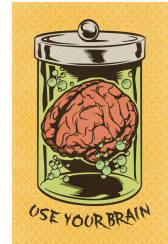
$x = 2$   
 $-3x + 2$   
 $-3(2) + 2$   
 $(-6) + (2)$   
 $-4$

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$x = 3$   
 $-3x + 2$   
 $-3(3) + 2$   
 $(-9) + (2)$   
 $(-7)$



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



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

Given  $x = -2$

$$y = -3x + 4$$

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

$$y = (+6) + 4$$

$$y = (+10)$$

$$(-2, +10)$$

b)  $(\underline{\quad}, -38)$

Given  $y = -38$

$$y = -3x + 4$$

$$-38 = -3x + 4$$

$$-38 - 4 = -3x + 4 - 4$$

$$-42 = -3x$$

$$\div (-3) \quad \div (-3)$$

$$\boxed{14 = x}$$

$$(14, -38)$$

$x, y$

(-)

+/-

$$x + 3 = 7$$

$$x + 3 - 3 = 7 - 3$$

$$x = 4$$

S A M D ~~A~~ B

$$2x + 4 = 14$$

$$2x + 4 - 4 = 14 - 4$$

$$2x = 10$$

$\div 2 \qquad \div 2$

$$x = 5$$

# Class/Homework

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

$$\begin{array}{r} 2 \\ \times 2 \\ \hline 4 \\ 4 \\ \hline 8 \end{array}$$

c)

End of #11

Do we need more? (if loud)

#5b, 8a,c, 9a,b,c, 10,

7) a)  $w = 7h$   
 $y = 7x$

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

b)  $w = 105$   
 $w = 7h$   
 $105 = 7h$   
 $\div 7$        $\div 7$   
15 = h

Work 15 hour to earn \$105

c) Given  $n = 24$   
 $w = 7h$   
 $7(24)$   
 $= 168$



$$6c) \quad y = 9x - 7$$

$$\downarrow$$
$$38 = 9x - 7$$

Need  $x$  alone

$$38^{+7} = 9x - \cancel{7}^{+7}$$

$$45 = 9x$$
$$\div 9 \quad \div 9$$

$$\boxed{5 = x}$$

$$\left( \frac{\quad}{x}, 38 \right)$$

$x, y$   
given  $y$

SAM D&B

$$6) \quad y = 9x - 7$$

$$(2, 11)$$

$x, y$

$$y = 9(2) - 7$$

18   -7

11

$$(4, -)$$

5a)  $y = 2x + 1$

$x$	$y$
1	
2	
3	
4	
5	

$$\begin{array}{l} x=1 \\ y=2x+1 \end{array} \left. \vphantom{\begin{array}{l} x=1 \\ y=2x+1 \end{array}} \right\} \begin{array}{l} x=2 \\ y=2x+1 \end{array} \left. \vphantom{\begin{array}{l} x=2 \\ y=2x+1 \end{array}} \right\} \begin{array}{l} x=3 \\ y=2x+1 \end{array}$$