Day 1

Review

1. Solve: $2x + 3 = 11$

$-3 \quad -3$

$2x = 8$

$x = 4$

2. Solve: $\frac{3}{x} = \frac{4}{5}$

$4x = 15$

$x = \frac{15}{4}$

3. Solve: $\frac{3}{(x+2)} = \frac{15}{20}$

$3 \quad 4$

$15x + 30 = 60$

$15x = 30$

$x = 2$

4. **Segment Addition Postulate:**

In the segment below,

$AB = 2x + 9, BC = 4x - 7, AC = 38$

What do x and AB equal?

$x =$ _____ $AB =$ _____

A — $2x+9$ — B — $4x-7$ — C

38

5. **Definition of a Midpoint:**

In the segment below,

B is the midpoint of $\overline{AC}$.

$AB = 4x + 2, BC = 6x - 8$

What do x and AC equal?

$x =$ _____ $AC =$ _____

A — $4x+2 = 6x-8$ — B — C

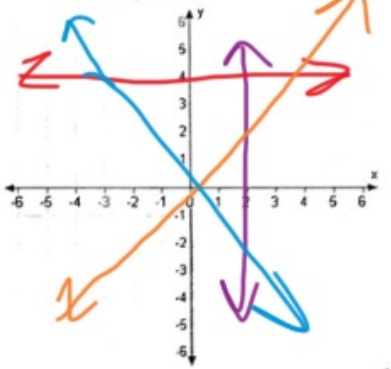
6. **Graph the following lines.**

a. $x = 2$ (Hint: Vertical Line)

b. $y = 4$ (Hint: Horizontal Line)

c. $y = x$ (Hint: $y = 1x + 0$)

d. $y = -x$ (Hint: $y = -1x + 0$)



7. **Classify the following angles: (Choose from acute, obtuse, right, or straight)**

8. **Angle Addition Postulate:**

SIDE NOTE: m∠1 is the shortcut way of writing "the measure of angle 1." It's like math texting – you write LOL instead of "laughing out loud," math people write m∠1 instead of "the measure of angle 1."

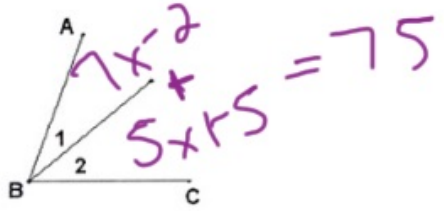
$m\angle 1 = 7x - 2$

$m\angle 2 = 5x + 5$

$m\angle ABC = 75°$

What is x equal to?

$x =$ _____



9. **Angle Bisector:** line or ray that divides an **angle** into two congruent **angles**.

$\overline{BD}$ bisects $\angle ABC$

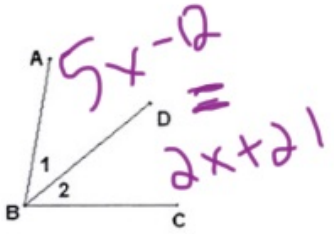
$m\angle 1 = 5x - 12$

$m\angle 2 = 2x + 21$

What are x and $m\angle ABC$?

$x =$ _____

$m\angle ABC =$ _____



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For 10-11, suppose $\overline{RS} \cong \overline{MN}$. For each set, solve for x, and find the length of each segment.

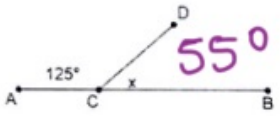
10. $RS = 3x + 17$, $MN = 7x - 15$

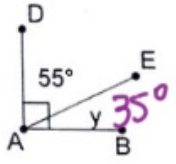
$x =$ ____ $RS =$ ____ $MN =$ ____

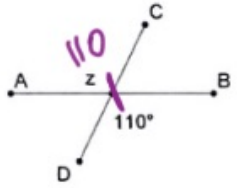
11. $RS = x + 10$, $MN = 2x + 4$

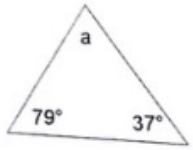
$x =$ ____ $RS =$ ____ $MN =$ ____

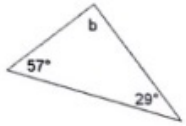
12. Given what you know about triangles, right angles, and straight angles, solve for the variables:

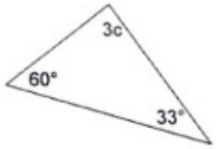












180 - 79 - 37

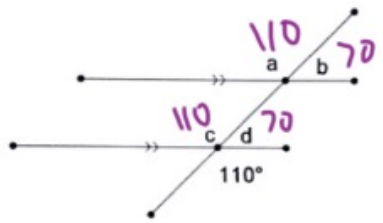
13. The angles around parallel lines have some really interesting properties…can you figure them out?
Find the values of a, b, c, and d.

$a =$ ____

$b =$ ____

$c =$ ____

$d =$ ____



Side Note: The little arrows on the two segments are Geometry notation for saying "these segments are parallel."

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14. Multiply each of the following polynomials:

a) $(x+5)(x+4) =$

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

c) $(x+6)^2 =$

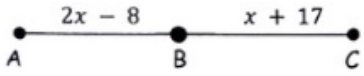
15. Factor each of the following polynomials:

a) $x^2 + 7x + 12 =$ ( )( )

b) $x^2 - 2x - 15 =$ ( )( )

c) $x^2 - 10x + 25 =$ ( )( )

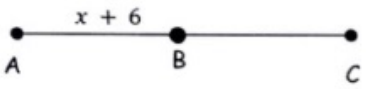
16. Let $\overline{AB} \cong \overline{BC}$.



$x =$ _____ $AB =$ _____

$BC =$ _____ $AC =$ _____

17. Let $\overline{AB} \cong \overline{BC}$, AC = 3x − 31



$x =$ _____

$AB =$ _____

$BC =$ _____

$AC =$ _____

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Example 1:

$y = 5 - 2x$
$5x - 6y = 21$

$5x-6(5-2x)=21$
$5x-30+12x=21$
$17x-30=21$
$+30 \quad +30$
$17x=51$
$x=3$

$y=5-2(3)$
$y=5-6$
$y=-1$
$(3,-1)$

Show ALL work! Use separate paper if needed.

1. $y = 3x$ $5x + y = 24$ Solution: _____	2. $y = 2x + 5$ $3x - y = 4$ Solution: _____	3. $x = 8 + 3y$ $2x - 5y = 8$ Solution: _____

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4. $3x + 2y = 71$ $y = 4 + 2x$ Solution: _____	5. $4x - 5y = 92$ $x = 7y$ Solution: _____	6. $y = 3x + 8$ $x = y$ Solution: _____
7. $8x + 3y = 26$ $y = 2x + 4$ Solution: _____	8. $x = 13 + 7y$ $3x - 5y = 23$ Solution:	9. $y = -3x + 19$ $2x - 5y = -10$ Solution:

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$5x - y = 20$
$3x + y = 12$

$(-1/2, 3/2)$

$4(3x + 5y = 6)$
$5(2x - 4y = -7)$

$12x + 20y = 24$
$+ 10x - 20y = -35$

$22x = -11$
$\frac{22x}{22} = \frac{-11}{22}$

$x = -1/2, y = 3/2$

$2(-1/2) - 4y = -7$
$-1 - 4y = -7$
$+1 \quad +1$
$-4y = -6$
$\frac{-4y}{-4} = \frac{-6}{-4}$
$y = 3/2$

Show ALL work! Use separate paper if needed.

10. $5x - y = 20$
$-3x + y = 12$

Solution: _____

11. $x + 3y = 7$
$x + 2y = 4$

Solution: _____

12. $3x - 2y = 11$
$3x - y = 7$

Solution: _____

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13. $9x - 2y = 50$
$6x - 2y = 32$

Solution: _____

14. $5x + 2y = 19$
$3x - 4y = 1$

Solution: _____

15. $x + y = 7$
$2x + y = 11$

Solution: _____

16. $3x - 5y = 6$
$2x - 4y = 4$

Solution:

17. $3x - 7y = -3$
$2x + 6y = -34$

18. $2x + 6y = 14$
$\frac{1}{2}x - 3y = 8$

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