Day 1 Placemat (Foundations skills needed for Unit 1)

1. Solve: $\frac{3}{x}=\frac{12}{15}$

2. Solve: $\frac{3}{x}=\frac{x}{27}$

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

4. Segment Addition Postulate:

In the segment below,

AB = 2*x* + 9, BC = 4*x* – 7, AC = 38

What do x and AB equal?

x = _____ AB = _____

5. Definition of a Midpoint:

In the segment below,

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

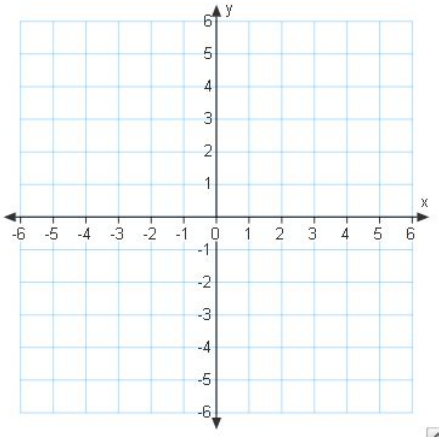
AB = 4*x* + 2, BC = 6*x* - 8

What do *x* and AC equal?

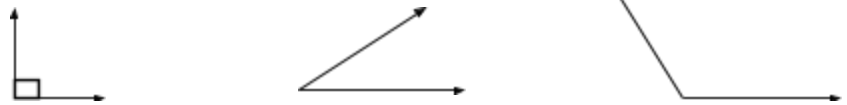
x = _____ AC = _____

6. Graph the following lines.

a. x = 2
b. y = 4
c. y = x (Hint: this is y = 1x + 0)
d. y = -x (Hint: this is y = -1x + 0)



7. Classify the following angles:



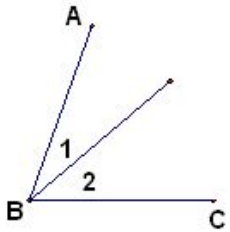
8. Angle Addition Postulate:

SIDE NOTE: m1 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 m1 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 = _____

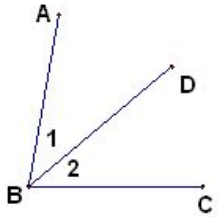


9. Angle Bisector:

BD bisects $\angle ABC$
$m\angle 1 = 5x - 12$
$m\angle 2 = 2x + 21$

What are *x* and $m\angle ABC$?

x = _____



$m\angle ABC$ = _____

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 = ____

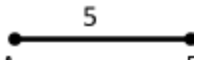
12. Congruent ($\cong$) means "the same size and shape." Equal (=) refers to numerical values. Fill in the following blanks with $\cong$ or = . Use the diagrams at the right to assist you.

a. 4 + 6 _____ 10

b. Triangle ZYX _____ Triangle WVU
Note: this is typically written
Δ ZYX _____ Δ WVU

c. 4x + 8 _____ 4(x + 2)

d. AB_____CD



e. $\overline{AB}$ _____ $\overline{CD}$

13. If U is between T and B, find the value of x and the lengths of the segments. (Hint: Draw a picture for each problem with the given information and then write the equation to solve.)
****between implies "on the same line as the other 2 points.**

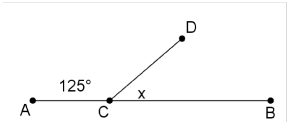
a. TU = 2x, UB = 3x + 1, TB = 21

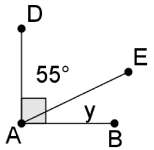
x = _____

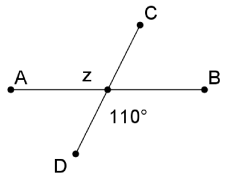
b.TU = 4x-1, UB = 2x -1, TB = 5x

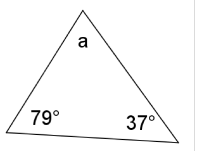
x =

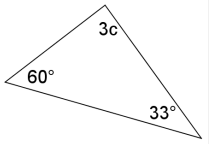
14. Given what you know about triangles, right angles, and straight angles, solve for the variables:

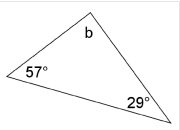




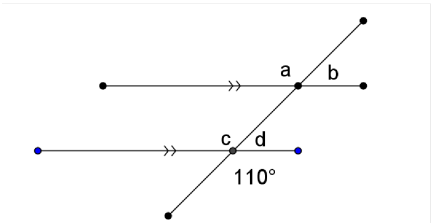








15. The angles around parallel lines have some really interesting properties…can you figure them out?
Find the values of a, b, c, and d.



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

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 = _____