Created by Jacob Creekmore

Warmup 1 / $\left(\frac{7 \cdot 7 \cdot 7 \cdot 7 \cdot 2}{7 \cdot 7 \cdot 7}\right)$

1. Convert the following recursive geometric rule to an explicit rule:

$$a_n = -5 \cdot a_{n-1}$$
$$a_1 = 4$$

$a_n = 4 \cdot (-5)^{n-1}$

1. Find the slope between the following points: $(-5,2)$, and $(3,9)$

$\frac{9-2}{3-(-5)} = \frac{7}{8}$

2. Simplify using exponent rules.

$x^5 \cdot x^{10}$ x^{15}

$\frac{2x^{24}}{4x^{24}}$ $\frac{1}{2}$

$(x^2)^{12}$ x^{24}

$(2)^{-2}$ $\frac{1}{4}$

3. Write the equation of a line in slope intercept form of a line that has a slope of -2 and contains $(1, -6)$.

m x y

$y = -2x - 4$

$y = mx + b$

$-6 = -2(1) + b$

$-6 = -2 + b$

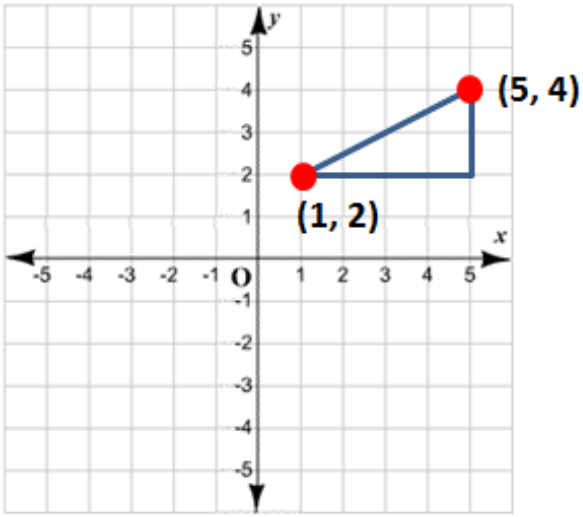
$-4 = b$

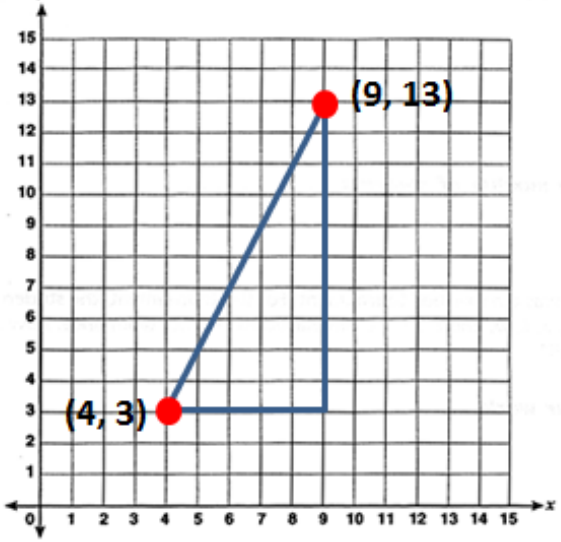
Check Homework

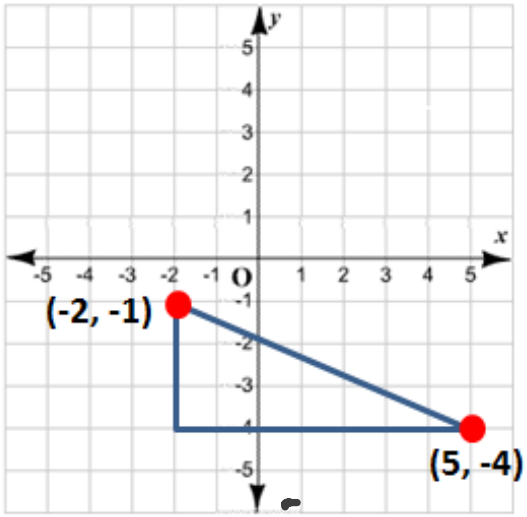
Quiz Tomorrow

- Naming Figures
- Finding the measures of angles and segments
- Problems like the pink sheet
- Midpoint and Distance
- I will give you the distance formula

Alternate Method: Distance Formula







- **How do you get the length of the HORIZONTAL leg?**
- **Subtract the x-coordinates!**
- **How do you get the length of the VERTICAL leg?**
- **Subtract the y-coordinates!**

$$a^2 + b^2 = c^2$$

When I'm finding the <u>distance</u>, which letter is that?

$$\sqrt{a^2 + b^2} = c$$

If "a" is the horizontal distance and "b" is the vertical distance:

$$\sqrt{(x - x)^2 + (y - y)^2} = c$$

Distance Formula

If (x_1, y_1) and (x_2, y_2) are the points, then:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

- **NOTE: If this formula confuses you, you don't have to use it (at least not this year). You can just draw the triangle and use $a^2 + b^2 = c^2$!**

- Find the distance between:

(2, 10) and (6, 3)

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$d = \sqrt{(6-2)^2 + (3-10)^2}$

$d = \sqrt{4^2 + (-7)^2}$

$d = \sqrt{16+49}$

$d = \sqrt{65}$

$d \approx 8.1$ units

To find the distance between 2 points…

- You can use the formula

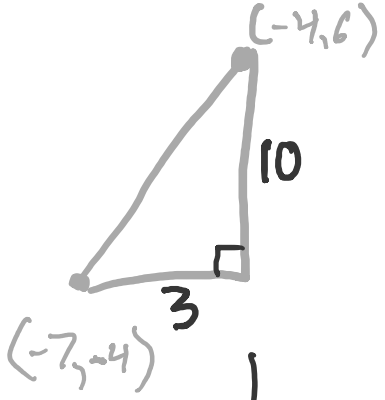
OR

- Graph them, draw the triangle, and use the Pythagorean Theorem

- When would each be more useful than the other?

Find the distance between the points

(-7, -4) and (-4, 6)



$$d = \sqrt{(-4 - -7)^2 + (6 - -4)^2}$$

$$d = \sqrt{(3)^2 + (10)^2}$$

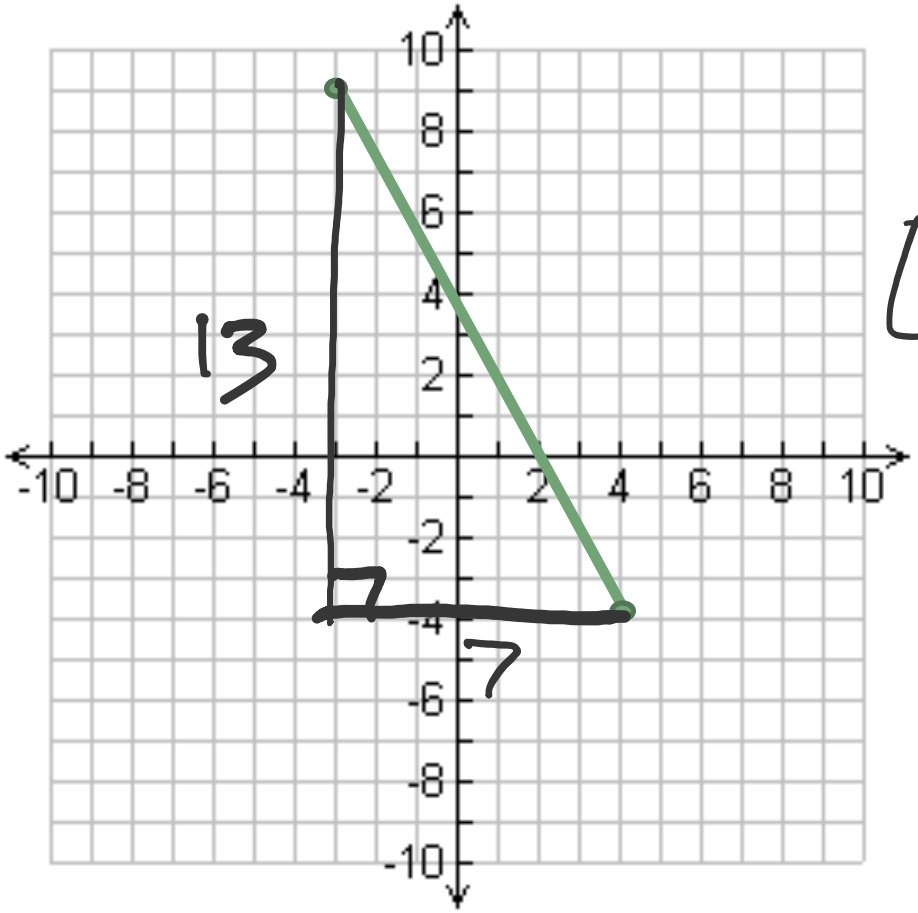
$$d = \sqrt{9 + 100}$$

$$d = \sqrt{109}$$

$$d \approx 10.4 \text{ units}$$

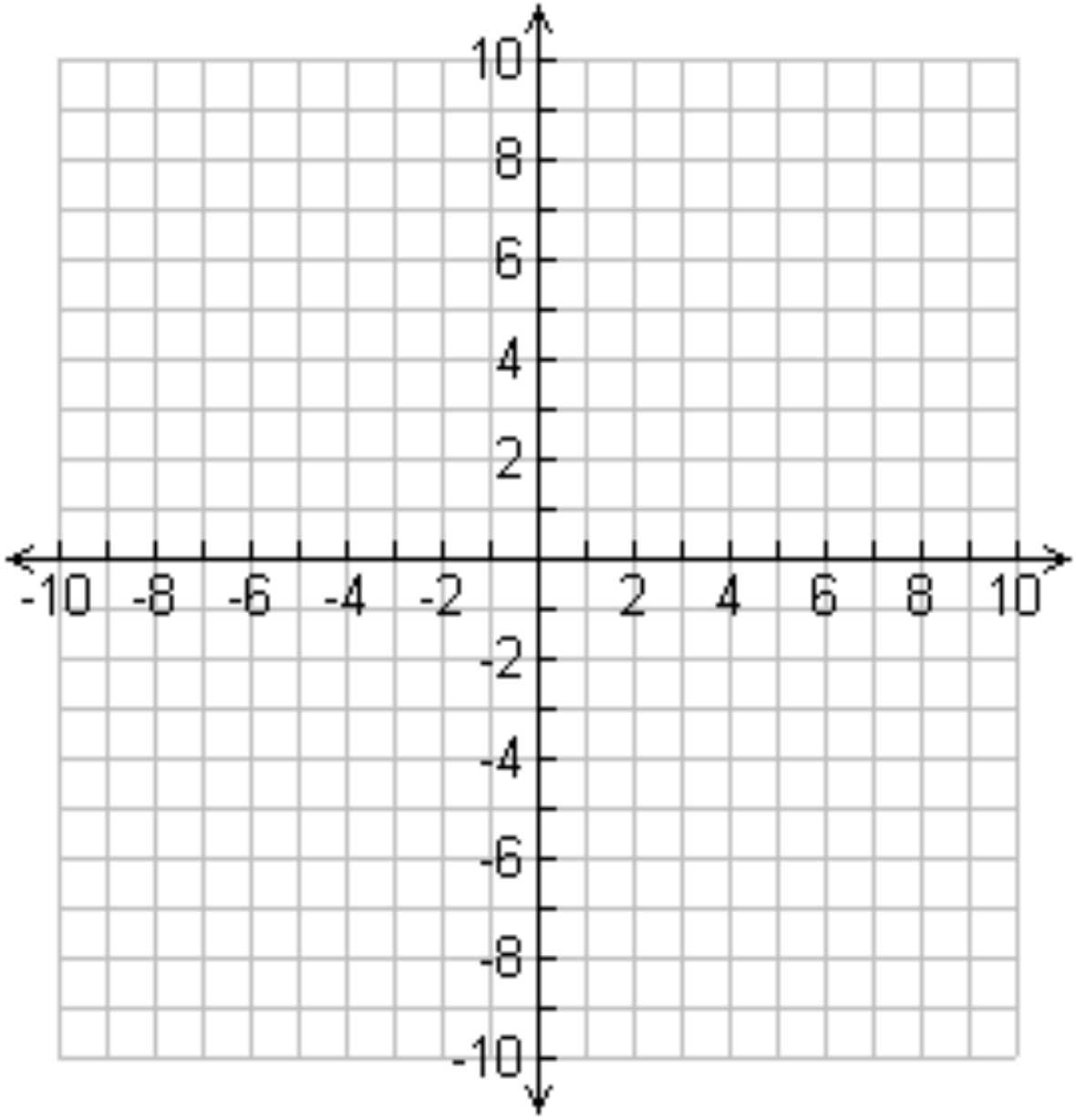
$$3^2 + 10^2 = d^2$$

Find the length of the line segment



On a town map, each unit of the coordinate plane represents 1 mile. Three branches of a bank are located at A(−3, 1) , B(2, 3) , and C (4, −1) .

A bank employee drives from Branch A to Branch B and then drives halfway to Branch C before getting stuck in traffic. What is the minimum total distance the employee may have driven before getting stuck in traffic? Round to the nearest tenth of a mile.


10
8
6
4
2
-10
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-2
2
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8
10
-2
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-8
-10

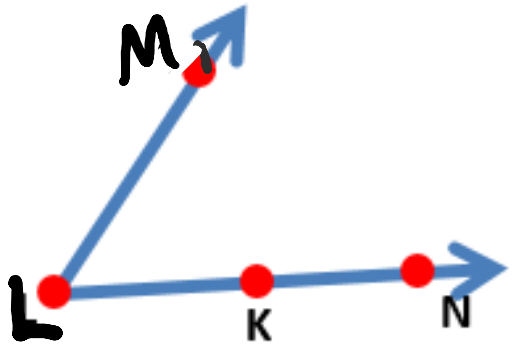
REVIEW

Whiteboards

How many of these are appropriate names for this line?

$\overleftrightarrow{J}$ $\overleftrightarrow{JK}$ $\overleftrightarrow{JL}$ $\overleftrightarrow{LK}$ $\overleftrightarrow{LJ}$ $\overleftrightarrow{JKL}$ $\overleftrightarrow{LKJ}$

How many of these are appropriate names for this angle?

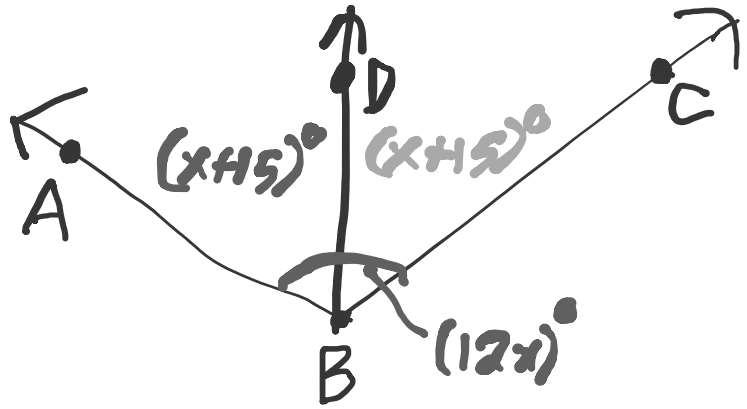


$\angle LMN$ $\angle MLN$ $\angle NML$ $\angle NLM$

$\angle L$ $\angle LMN$ $\angle MLK$ $\angle KLM$

$\overrightarrow{BD}$ bisects $\angle ABC$, $m\angle ABD = (x+15)^\circ$, and $m\angle ABC = (12x)^\circ$.

What is the value of x?



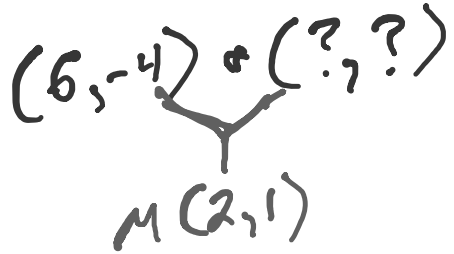
$(x+15)+(x+15) = 12x$

$2x+30 = 12x$

$30 = 10x$

$3 = x$

M is the midpoint of $\overline{RS}$. R has coordinates (6, -4), and M has coordinates (2, 1). What are the coordinates of S?



$\frac{6+x}{2} = 2$

$6+x = 4$

$x = -2$

$\frac{-4+y}{2} = 1$

$-4+y = 2$

$y = 6$

(-2, 6)

OR

END (6,-4)

MID (2,1)

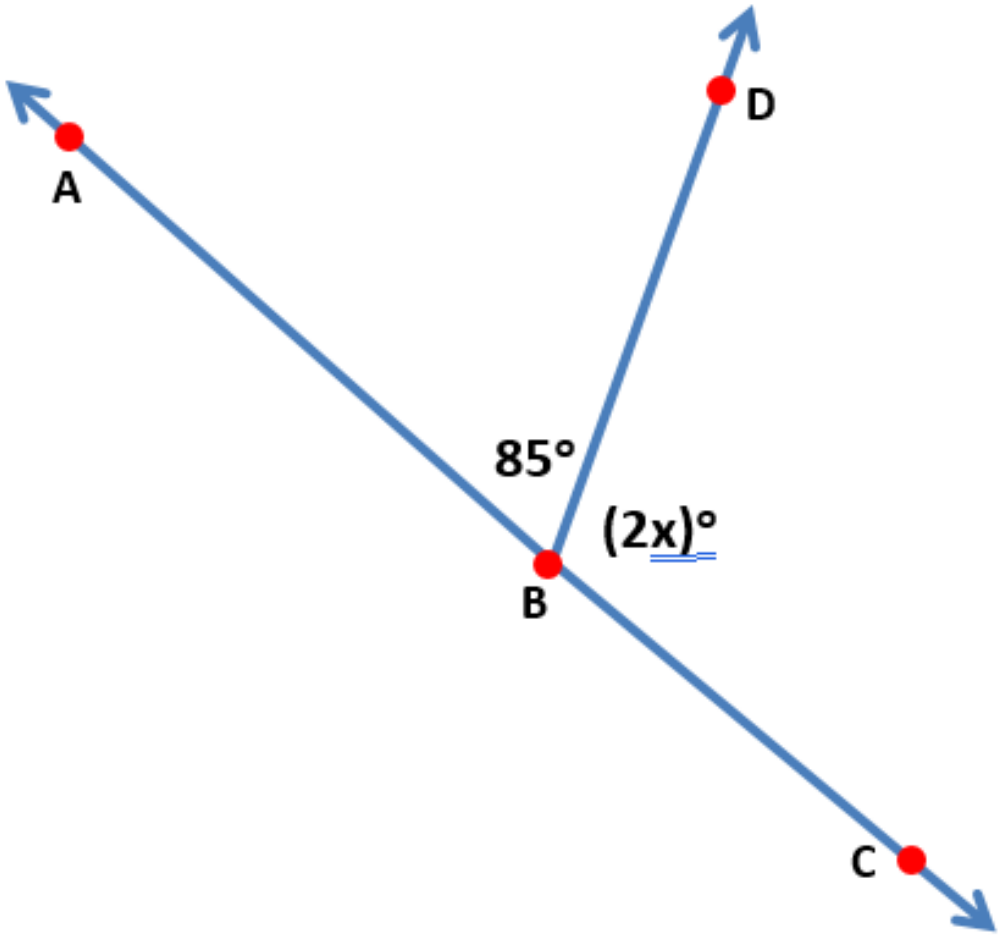
END (?,?)

-4 +5

-4 +5

(-2, 6)

If $m\angle ABC = 180°$, find the value of x.

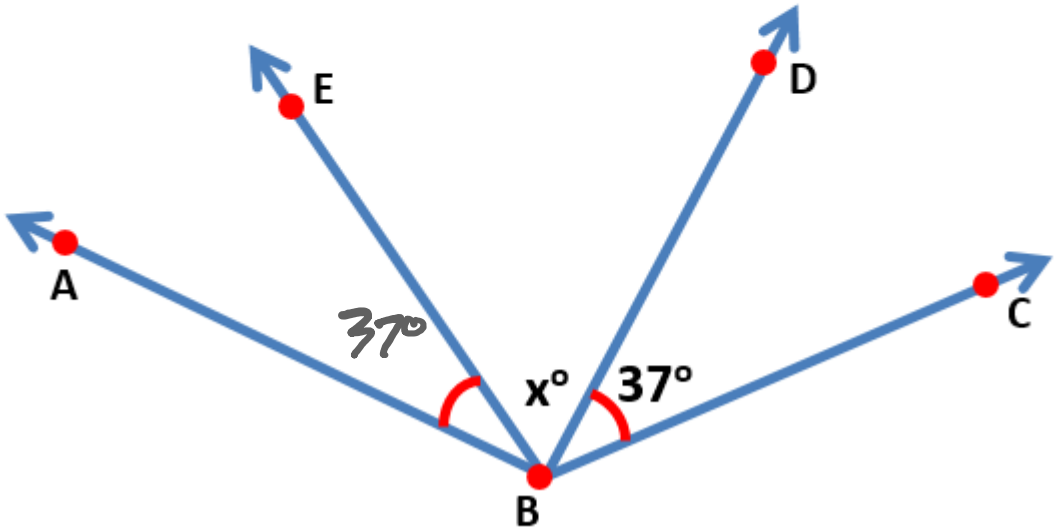


$85 + 2x = 180$

$2x = 95$

$x = 47.5$

If $m\angle ABC = 150^o$, find the value of x.



$37 + x + 37 = 150$

$74 + x = 150$

$x = 76$

How many points do you use if you are naming a plane?

If one of the endpoints is (-3, 7) and the midpoint is (2, 5.5), what are the coordinates of the other endpoint?

(7, 4)

Find the distance between (-4, 9) and (2, 1).

$6^2 + 8^2 = d^2$

$d = 10$

Find the distance between (-3, 5) and (6, 13).

$9^2 + 8^2 = d^2$

$\sqrt{145} = d$

$12.0 \approx d$

Homework

- Study for quiz!
- Complete and check your worksheet using the answer key online (use a different color for corrections!