Best Practices in Math to Support Academic Language Development and Conceptual Understanding

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BEAVERTON
SCHOOL DISTRICT
THRIVE • CONTRIBUTE • EXCEL

Resources/Examples

I believe that these two triangles _____

based on the fact that _____

Further evidence can be found by _____

_____. This proves that

_____. Because they _____

_____the two criteria of similar triangles, _____

and _____.

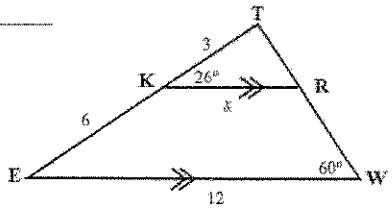
26. Use the diagram at the right.

a. What angle besides ∠TKR measures 26°? _____

b. What is the measure of ∠TRK? _____

c. What is the measure of ∠T? _____

d. What is the value of x? _____

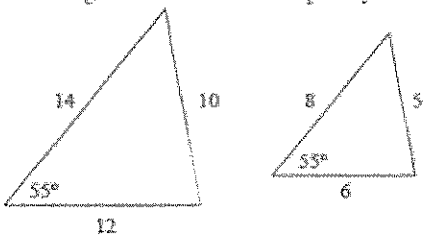


Triangle _____ is similar to _____ due to the fact that _____

_____. Further evidence can be found

by _____.

Are the triangles below similar? Explain your answer.



I believe that these two triangles _____

based on the fact that _____

Further evidence can be found by _____

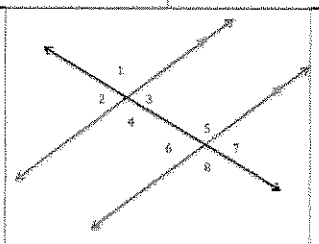
_____. This proves that

_____. Because they _____

_____the two criteria of similar triangles, _____

and _____.

Corresponding angles:	**Vertical angles:**
Corresponding angles are _____	Vertical angles are _____

Alternate Interior angles:		**Alternate Exterior angles:**
Alternate interior angles are _____		Alternate Exterior angles are _____

Same Side Interior (SSI):	**Linear Pair:**
Same side interior angles _____	A linear pair _____

_____ ..is **NOT** an example of direct variation because _____	_____ ..is an example of direct variation because _____ and _____

Mathematically Speaking!!!
Function Notation

Evaluate the function with the given domain, identify the range. **$f(x) = 3x - 4$** **Domain: 0, 2, 3, 6**	Evaluate the function with the given domain, identify the range. **$g(x) = 3x - 4$;** **domain x = -2, -1, 0, 1,**	Evaluate the function with the given domain, identify the range. **$h(x) = \frac{1}{2}x + 3$** **Domain; $x \geq 0$**
Evaluate the function with the given domain, identify the range. **$i(x) = 5$** **Domain; $x \leq -2$**	Evaluate the function with the given domain, identify the range. **$j(x) = x + 2$** **Domain: $x > 2$**	Evaluate the function with the given domain, identify the range. **$k(x) = 3x + 2$** **Domain: 3, 5, 7, 9**
Evaluate the function with the given domain, identify the range. **$m(x) = \frac{x}{3}$** **Domain: 6, 9, 12**	Evaluate the function with the given domain, identify the range. **$n(x) = 5x^2$** **Domain: $-2 \leq x \leq 8$**	Evaluate the function with the given domain, identify the range. **$p(x) = x - 4$** **Domain: $0 < x < 7$**
Evaluate the function with the given domain, identify the range. **$q(x) = 8.5x - 3$** **Domain: $80 \leq x < 100$**	Evaluate the function with the given domain, identify the range. **$r(x) = 0.3x - 9.7$** **Domain: $x > 14$**	Evaluate the function with the given domain, identify the range. **$s(x) = x^2$** **Domain: $-5 \leq x \leq 5$**

Mathematically Speaking!!!
Function Notation

Partner #1: *Evaluate the function* and ***explain your thinking*** using the vocabulary words in the table below.
Partner #2 will **check off** the vocabulary words each time you use them.

Partner #2, encourage your partner to continue explaining until they have used all the vocabulary words.

Then switch and **partner #2** will *evaluate* a different problem while **partner #1 checks off** the vocabulary words.

Math Vocabulary	Partner #1	Partner #2
Discrete		
Continuous		
f(x)		
x-value		
Constraints		
Input		
Output		
Function		
Domain		
Range		
Solutions		

Observables	Rating (1-2-3)	Comments
Teacher expectations and strategies engage students in rigorous work.	1 - 2 - 3	
Teachers uses strategies that capitalize on learning needs of students	1 - 2 - 3	
Teacher sets expectation and provides support for a variety of engagement strategies and structures that facilitate participation and meaning making by students.	1 - 2 - 3	
Students have the opportunity to engage in quality talk and student talk reflects knowledge and ways of thinking associate with content. Students provide evidence to support thinking.	1 - 2 - 3	

Evidence
In regards to _____, I believe _____ due to the fact _____. Further evidence of _____is when students/teacher did _____ _____.

Adapted from 5D+ Teacher Evaluation Rubric – Center for Educational Leadership

Post It Note / Sticky Note: 3" X 3"

_____ ..is an example of direct variation because _____ and _____	_____ ..is an example of direct variation because _____ and _____
_____ ..is an example of direct variation because _____ and _____	_____ ..is an example of direct variation because _____ and _____
_____ ..is an example of direct variation because _____ and _____	_____ ..is an example of direct variation because _____ and _____

Name ______________________

Date ______

____Angle Relationship Test

Station Work

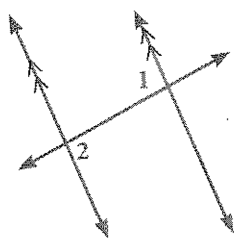
Differentiated Review - When a student shows mastery (100%) of one page (skill) they move on to the next skill. Each skill has a practice station. Students test at the end of each class period. There is an application extension for students who master all skills.

Word Bank

Alternate exterior angles   Alternate interior angles   Complementary angles   Corresponding angles   Same side interior angles   Supplementary angles   Vertical angles

Identify the Angle Relationship in each illustration.

1.



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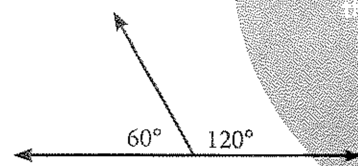
2.



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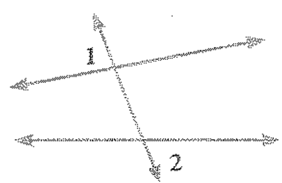
3.



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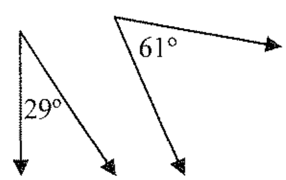
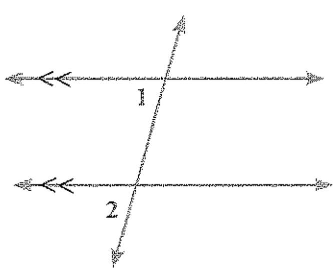
4.



____

5.



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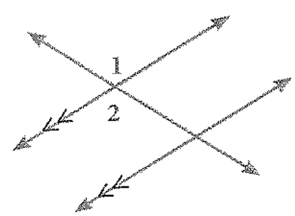
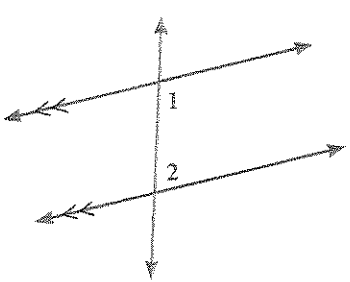
6.



____

7.



____

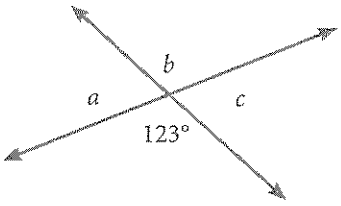
____Complementary, Supplementary, or Congruent Test

Station Work

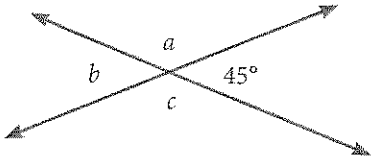
*Alternate exterior angles	*Alternate interior angles	Complementary angles	Linear Pairs
*Corresponding angles	*Same side interior angles	Supplementary angles	Vertical angles

List each special angle pair from the list in the table. Assume lines are parallel for *angle.

Have a sum of 90°	Have a sum of 180°	Are equal in measure

1. 

a_____ b_____ c_____

2. 

a_____ b_____ c_____

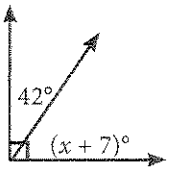
3. The measure of $\angle J$ is 20°. What is the measure of its complement? _____

4. The measure of $\angle Z$ is 110°. What is the measure of its supplement? _____

____Missing Angle Measure Test

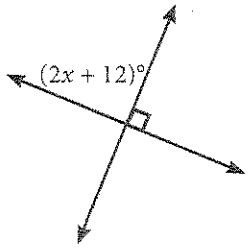
Station Work

1.



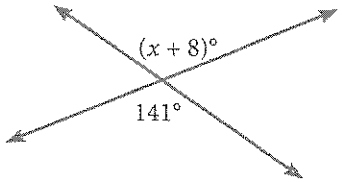
x = _____

2.



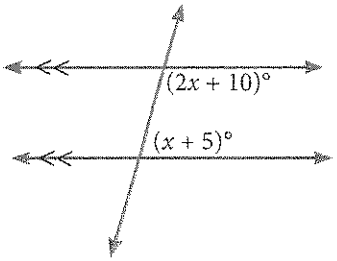
x = _____

3.



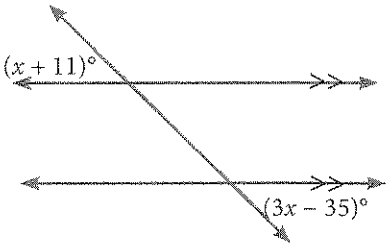
x = _____

4.



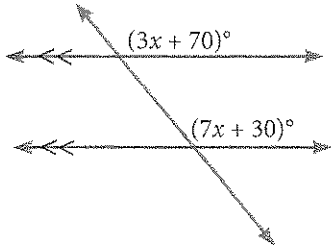
x = _____

5.



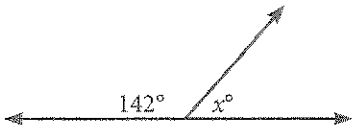
x = _____

6.



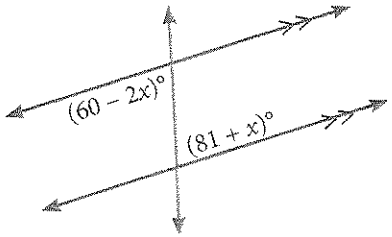
x = _____

7.



x = _____

8.



x = _____

Using a Template to Draft a Problem-Solving Summary

			Write your complete sentence here.
To understand the problem, I....	○ read for ○ looked at ○ thought about ○ considered the	❑ signal words. ❑ numerical expressions. ❑ key ideas. ❑ familiar content.	_____ _____ _____ _____.
My first step in devising a plan...	○ included ○ began with ○ was based on ○ used	❑ a picture or drawing. ❑ a simpler problem. ❑ a variable. ❑ working backwards.	_____ _____ _____ _____.
To carry out the plan, I...	○ made a _____. ○ solved the _____. ○ experimented with _____. ○ looked for _____.		_____ _____ _____ _____.
The strategy I used....	○ helped me understand that _____. ○ made it clear that _____. ○ confused me by _____. ○ resulted in _____.		_____ _____ _____ _____.
My next step will...	○ require that _____. ○ be to _____. ○ involve _____. ○ entail _____.		_____ _____ _____ _____.

Name _____ Date _____

MSA Inv 2 Reflection

1. The equation "y = mx + b" represents a _____ relationship.

I can tell because _____

_____.

The "y" in the equation stands for: _____.

The "m" in the equation stands for: _____. It tells me_____

_____.

The "x" in the equation stands for: _____.

The "b" in the equation stands for: _____. It tells me_____

_____.

For example, in the equation _____ the value of "m" is _____

and the value of "b" is _____ which means that _____.

_____.

2. I can use a table or a graph of a linear relationship to find a solution to a problem by locating either the

_____ *value or the* _____ *value on the table or graph and looking at the number* _____.

In a graph you can find the second number by _____

_____. *In a table you can find the second number by* _____

_____.

The solution to a linear equation represents a point on a graph or in a table that includes two numbers,

(,). The first number represents an _____ *value and the second number represents a* _____

value.

I can use an equation to solve a problem by _____ *a number for one of the* _____,

and then _____ *to find the value of the second* _____.

Adapted by Jamie Cooper from Connected Math "Moving Straight Ahead" Investigation 2 Reflection.

4

Name: Olivia Ahana Lv Period: 2 Date: 10/2

MSA Inv 2 Reflection

1. The equation "y = mx + b" represents a linear relationship.

I can tell because "mx" means the # it moves by every x, it moves by the same # its linear.

The "y" in the equation stands for: answer.

The "m" in the equation stands for: move "rate". It tells me the # it moves by.

The "x" in the equation stands for: independent variable.

The "b" in the equation stands for: begin. It tells me the # it begins by. y intercept.

For example, in the equation 2x + 5 the value of "m" is 2 and the value of "b" is 5 which means that you start at 5 and go ↑ 2 each time.

2. I can use a table or a graph of a linear relationship to find a solution to a problem by locating either the y value or the x value on the table or graph and looking at the number on the x axis. In a graph you can find the second number by looking at the y axis. In a table you can find the second number by going down one column & looking at the # next to it. (x, y)

The solution to a linear equation represents a point on a graph or in a table that includes two numbers, (3, 4). The first number represents an x value and the second number represents a y value.

I can use an equation to solve a problem by substitute a number for one of the variables, and then solve the equation to find the value of the second variable.

11a

Name: Eric W. Williams Period: 4 Date: 10/2/15

MSA Inv 2 Reflection

1. The equation "y = mx + b" represents a linear relationship.

I can tell because it has a single, constant rate of change.

The "y" in the equation stands for: the dependent variable.

The "m" in the equation stands for: slope. It tells me the rate of change.

The "x" in the equation stands for: the independent variable.

The "b" in the equation stands for: the start value. It tells me what the value of y is when x is 0.

3

For example, in the equation $y = 2x + 3$ the value of "m" is 2

and the value of "b" is 3 which means that it starts at 3 and increases by 2 each time.

2. I can use a table or a graph of a linear relationship to find a solution to a problem by locating either the X value or the Y value on the table or graph and looking at the number across of it. In a graph you can find the second number by going to the line and looking at the other coordinate. In a table you can find the second number by looking at the number across of it.

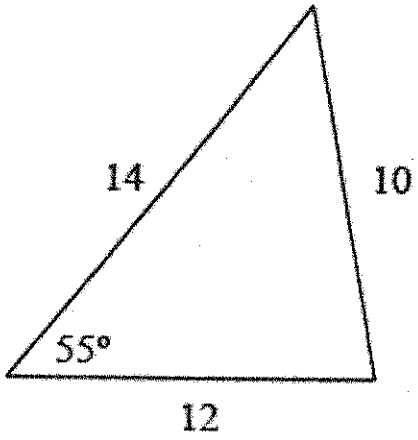
The solution to a linear equation represents a point on a graph or in a table that includes two numbers, (X , Y). The first number represents an X value and the second number represents a Y value.

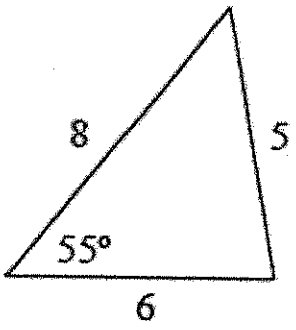
I can use an equation to solve a problem by _____ a number for one of the _____, and then _____ to find the value of the second _____.

11b

Name: Jordan Farrell Period: ____ Date: ____

Are the triangles below similar? Explain your answer.





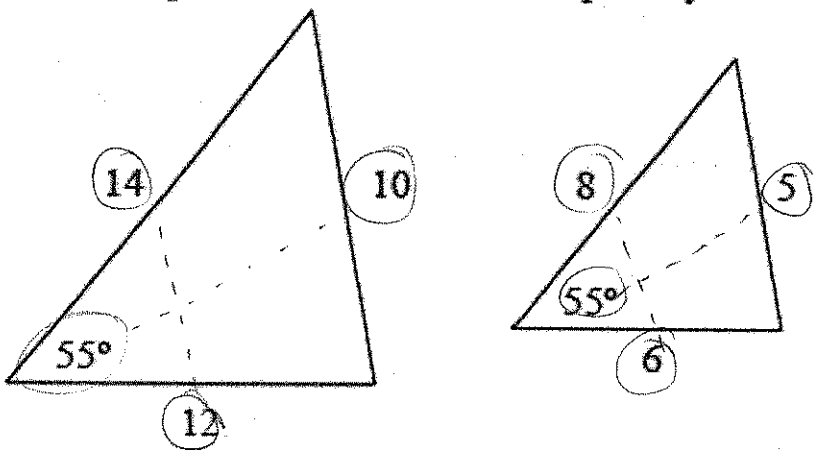
$\frac{10}{5} \quad \frac{12}{6} \quad \frac{14}{8}$

$\frac{2}{1} = \frac{2}{1} \neq 1\frac{3}{4}$

I believe that these two triangles Are not Similar.
based on the fact that the Sides are not Proportionate
Further evidence can be found by not Knowing the Angles so
they may not have the same Angles. This proves that
They are not Similar. Because they do not follow
the two criteria of similar triangles, Proportionate Edges
and Same Angles.

Name: Maria Jarcie Sandoval Period: 4 Date: Feb 21, 2014.
COVQ3

Are the triangles below similar? Explain your answer.



$\frac{\text{Big } \Delta}{\text{little } \Delta} = \frac{14}{8} = \frac{10}{5} = \frac{12}{6}$

$1.75 \neq 2 = 2$

I believe that these two triangles are not similar because.
based on the fact that they have same angles (corresponding
Further evidence can be found by the are not
proportional. This proves that
they are similar. Because they _____
_____ the two criteria of similar triangles, _____
and _____.