Unit: Angles & Triangles Review

Name _____

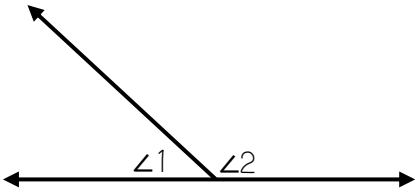
Date _____Pd_____

ANGLES AND TRIANGLES UNIT STUDY GUIDE

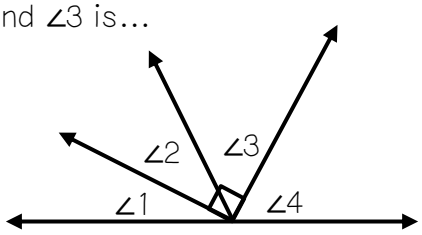
Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

I CAN CLASSIFY ANGLE RELATIONSHIPS.

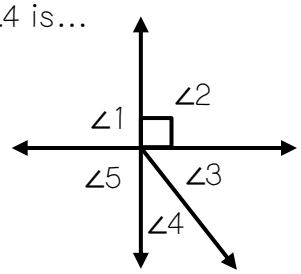
1. The relationship between ∠1 and ∠2 is...



2. The relationship between ∠2 and ∠3 is...



3. The relationship between ∠3 and ∠4 is...



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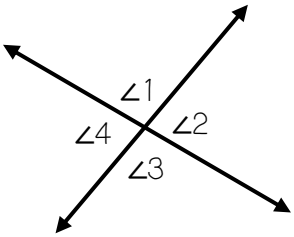

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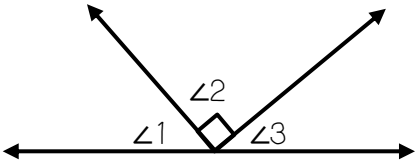
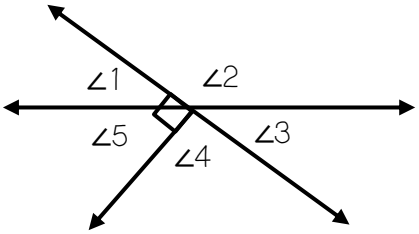
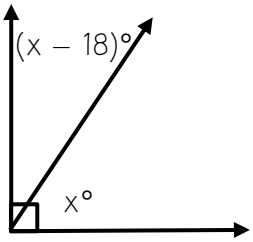


6. The relationship between ∠2 and ∠3 is...



I CAN USE COMPLEMENTARY & SUPPLEMENTARY ANGLES TO WRITE & SOLVE EQUATIONS.

7.

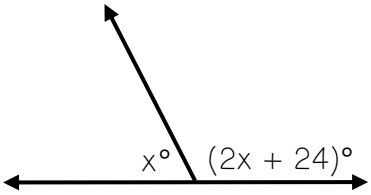


equation: _____

x: _____

angle measure: _____

8.



equation: _____

x : _____

angle measures: _____

9. Two angles are supplementary. The first angle is (4x)° degrees. The second angle is (2x + 6)° degrees. Determine the measure of each angle.

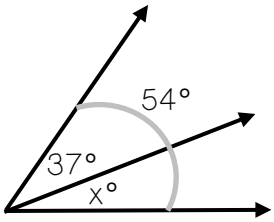
equation: _____

x : _____

angles measures: _____

I CAN USE VERTICAL AND ADJACENT ANGLES TO WRITE AND SOLVE EQUATIONS.

10.

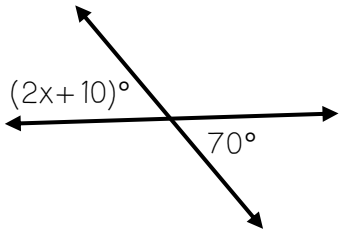


equation: _____

x: _____

angle measures: _____

11.

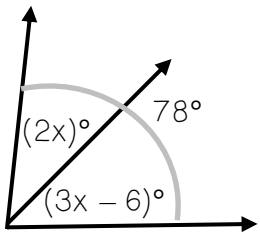


equation: _____

x: _____

angle measures: _____

12.



equation: _____

x: _____

angle measures: _____

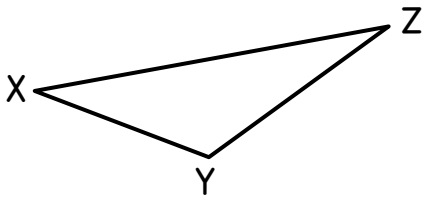
I CAN APPLY KNOWLEDGE OF TRIANGLES.

13. Use the triangle at the right to answer the questions.

a. Angle XYZ corresponds with side length _____

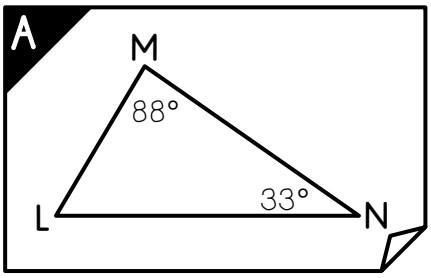
b. Angle ZXY corresponds with side length _____

c. Angle YZX corresponds with side length _____

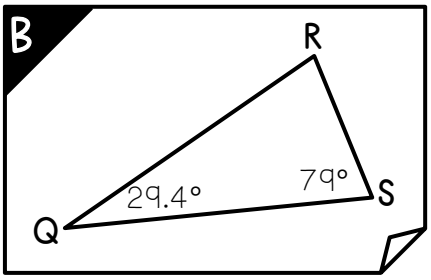


14. Find the missing angle measure in each triangle below.

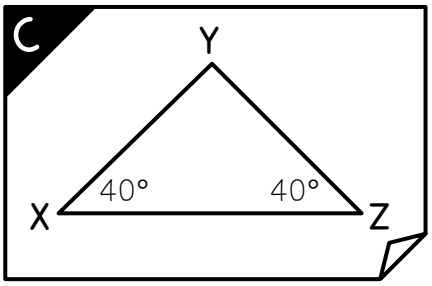
A



B



C

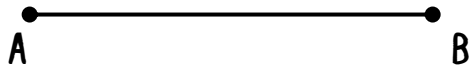


15. Three students wrote side lengths that they thought would form a triangle. Which student(s) were correct? Justify your response.

KEISHA	MIGUEL	RALPHIE
10 cm, 15 cm, 24, cm	21 cm, 7 cm, 6 cm	9 cm, 22 cm, 11cm

I CAN CONSTRUCT TRIANGLES.

16. Marcella draws the line segment shown below to construct a triangle. Finish the construction so that $m\angle A = 55°$ and $m\angle B = 35°$.



What is the measure of $\angle ACB$? _____

17. Construct triangle XYZ, where the $m\angle YXZ = 30°$, the $m\angle XYZ = 70°$, and the length of $\overline{XY}$ is 2 inches.

I CAN DETERMINE THE CONDITIONS FOR A UNIQUE TRIANGLE, MORE THAN ONE TRIANGLE, OR NO TRIANGLE.

18. The cards below contain clues. Determine whether the conditions will result in one unique triangle, more than one triangle, or no triangle. Justify your solution with a sketch and description below.

A
$\triangle ABC$
AB is 6.3 cm
BC is 4.2 cm
CA is 10.4 cm

B
$\triangle DEF$
DE is 2 cm
EF is 3 cm
FD is 5 cm

C
$\triangle GHI$
$\angle G$ is 80°
$\angle H$ is 42°
$\angle I$ is 58°

a. Card A:_____

_____

b. Card B: _____

_____

c. Card C: _____

_____

I'VE GOT IT!

What concepts can I ace on the test?

HELP!

What concepts do I need to study?

Unit: Angles & Triangles Test

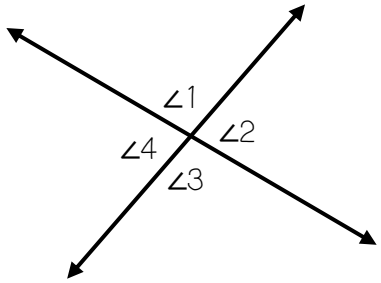
Name _____

Date _____Pd_____

ANGLES AND TRIANGLES UNIT TEST

Solve the problems below. Be sure to show your thinking.

1. Which of the angles below are vertical angles?



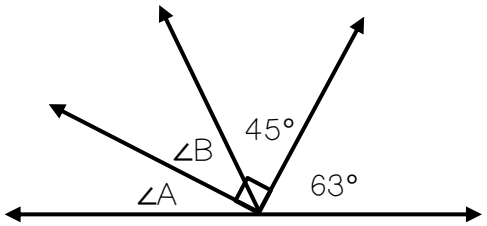
A. ∠1 and ∠3

B. ∠3 and ∠4

C. ∠1 and ∠2

D. ∠4 and ∠1

2. Determine which equation below can be solved to find the value of ∠A.



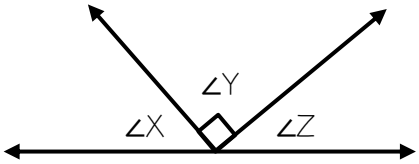
A. x + 45 + 63 = 180

B. x + 90 + 63 = 180

C. x + 45 + 63 = 90

D. x + 90 + 63 = 360

3. Using the diagram below, determine which statement is NOT true.



A. angle Y is 90°

B. angles X and Z are complementary

C. angles X and Z are supplementary

D. angles Y and Z are adjacent

4. Daniel is given the following information to construct a triangle. Determine what type of triangle will be constructed.

80°, 40°, and 40° angles

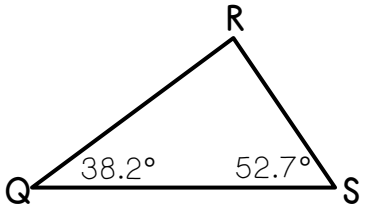
A. a unique triangle

B. more than one triangle

C. no triangle

D. a right triangle

5. Triangle QRS is shown below. Use the information given to determine the measure of ∠R.



_____

6. Which three lengths cannot be the lengths of the sides of a triangle?

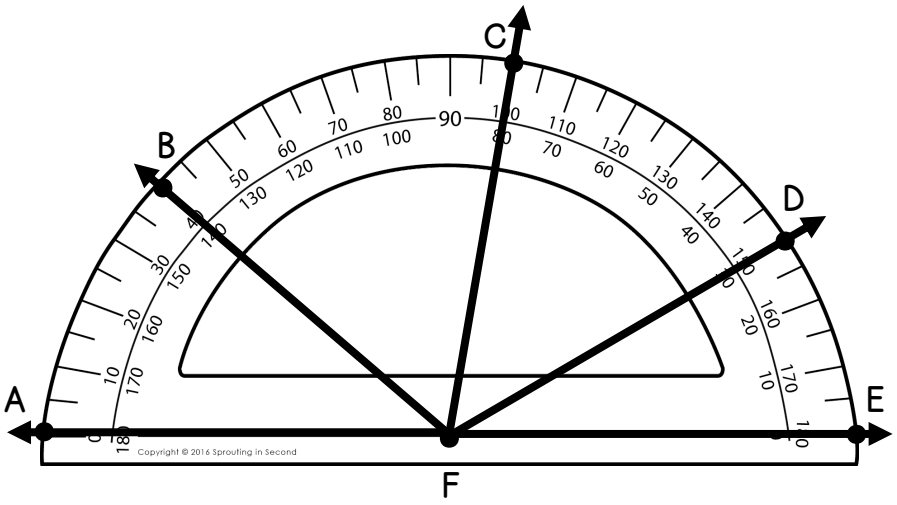
A. 23 m, 17 m, 14 m

B. 11 m, 11 m, 12 m

C. 5 m, 7 m, 8 m

D. 21 m, 6 m, 10 m

Use the protractor below to answer questions 7-10.



7. What is the measure of ∠BFC?

A. 60°

B. 110°

C. 70°

D. 140°

8. Which of the following is a set of complementary angles?

A. ∠CFD and ∠EFD

B. ∠AFB and ∠DFE

C. ∠AFC and ∠DFC

D. ∠BFC and ∠DFE

9. Which pair of angles is an example of supplementary angles?

A. ∠AFB and ∠EFC

B. ∠AFC and ∠DFE

C. ∠AFD and ∠DFC

D. ∠AFD and ∠EFD

10. Which of the following is NOT a true statement?

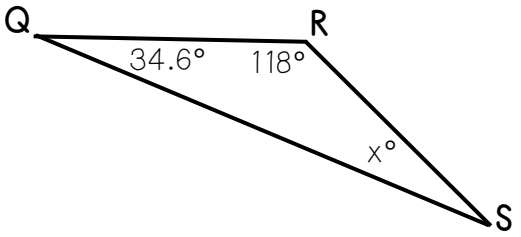
A. ∠EFC measures 80°

B. ∠BFC and ∠DFE have a sum of 90°

C. ∠AFD measures 130°

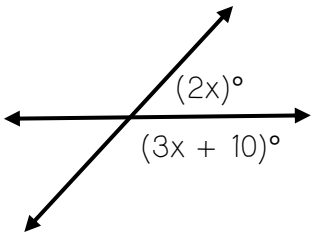
D. ∠AFB and ∠CFD are complementary

11. Using the triangle below, set up and solve an equation in order to find the value of x.



_____

12. Find the measure of the largest angle in the diagram below.



_____

13. Various pieces of string are cut at different lengths. Stephanie selects three pieces that measure 4.5 cm, 6 cm, and 8.5 cm. Determine what type of triangle Stephanie will form.

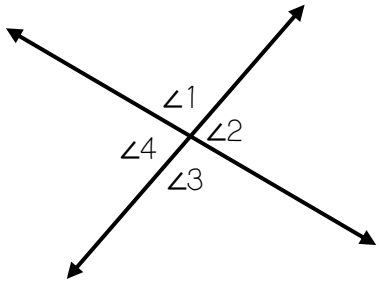
A. a unique triangle
B. more than one triangle
C. no triangle
D. a right triangle

14. Two sides of a triangle have lengths of 7 ft and 15 ft. Which inequality represents the possible length for the third side, x?

A. $8 < x < 22$
B. $8 < x < 15$
C. $7 < x < 15$
D. $8 < x < 7$

15. Construct triangle PQR, where the $m\angle P = 50°$, the $m\angle Q = 65°$, and the length of $\overline{PQ}$ is 4 cm.

16. The measure of $\angle 1$ is 95°. Which of the following is NOT a true statement about the angles shown below?



A. The measure of $\angle 3$ is 95°.
B. The measure of $\angle 4$ is 105°.
C. The measure of $\angle 2$ is 85°.
D. $\angle 2$ and $\angle 4$ are vertical angles.

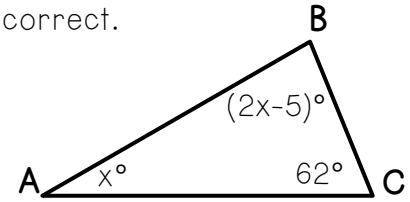
17. Which of the following conditions would allow for more than one possible triangle construction?

A. Three angles that measure 102°, 37°, and 41°.
B. $m\angle R = 26°$, $m\angle S = 79°$, $m\angle T = 80°$
C. side lengths of 14 ft, 20 ft, and 15 ft
D. Three line segments that measure 10 in, 20 in, and 6 in.

18. In triangle JKL, $\angle J$ measures 25.8°, and $\angle K$ is a right angle. What is the measure of $\angle L$?

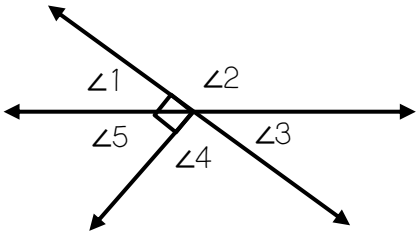
_____

19. Using the diagram below, determine which statement is correct.



A. The measure of $\angle ABC$ is 77°.
B. The measure of $\angle BCA$ is obtuse.
C. The measure of $\angle CAB$ is 23°.
D. The value of x is 29.

20. What is the relationship between $\angle 1$ and $\angle 5$?



A. vertical and congruent
B. complementary and adjacent
C. supplementary and adjacent
D. supplementary and vertical

Unit: Angles & Triangles Review

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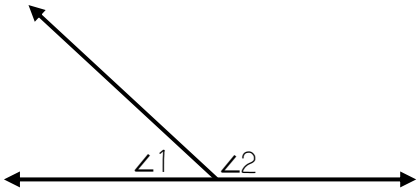
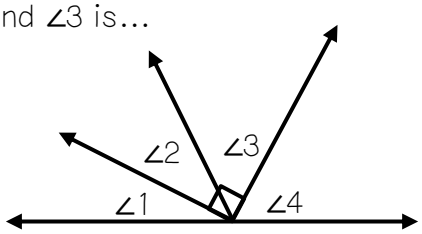


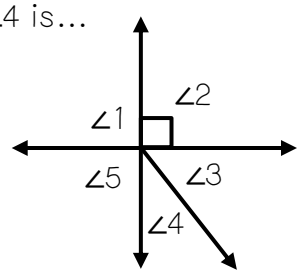
supplementary, adjacent

2. The relationship between ∠2 and ∠3 is...



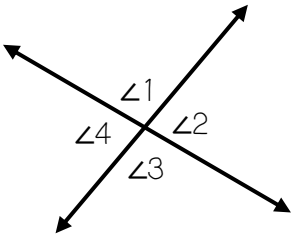
complementary, adjacent

3. The relationship between ∠3 and ∠4 is...



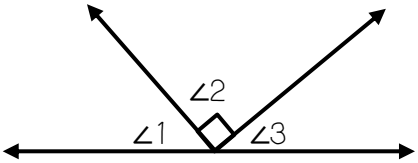
complementary, adjacent

4. The relationship between ∠1 and ∠3 is...



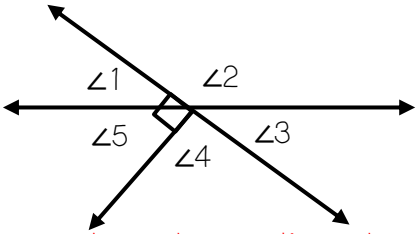
vertical angles, congruent

5. The relationship between ∠1 and ∠3 is...



complementary

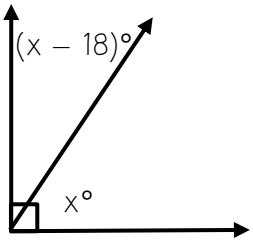
6. The relationship between ∠2 and ∠3 is...



supplementary, adjacent

I CAN USE COMPLEMENTARY & SUPPLEMENTARY ANGLES TO WRITE & SOLVE EQUATIONS.

7.

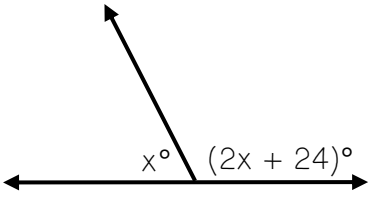


equation: x + (x – 18) = 90

x: 54

angle measure: 54° and 36°

8.



equation: x + (2x +24) = 180

x : 52

angle measures: 52° and 128°

9. Two angles are supplementary. The first angle is (4x)° degrees. The second angle is (2x + 6)° degrees. Determine the measure of each angle.

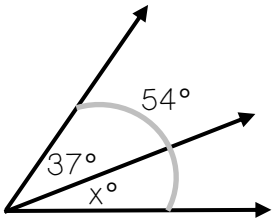
equation: 4x + (2x + 6) = 180

x : 29

angles measures: 64° and 116°

I CAN USE VERTICAL AND ADJACENT ANGLES TO WRITE AND SOLVE EQUATIONS.

10.

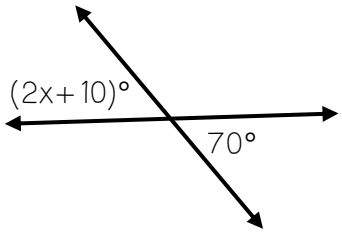


equation: 37 + x = 54

x: 17

angle measures: 17°, 37°

11.

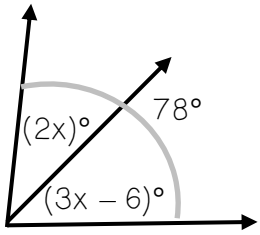


equation: 2x = 70

x: 30

angle measures: 70°

12.



equation: 2x + (3x – 6) = 78

x: 16.8

angle measures: 33.6°, 44.4°

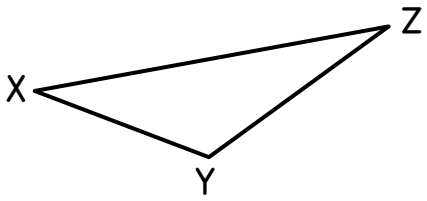
I CAN APPLY KNOWLEDGE OF TRIANGLES.

13. Use the triangle at the right to answer the questions.

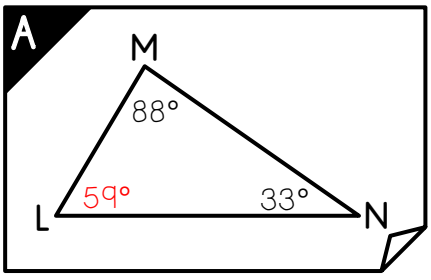
a. Angle XYZ corresponds with side length XZ

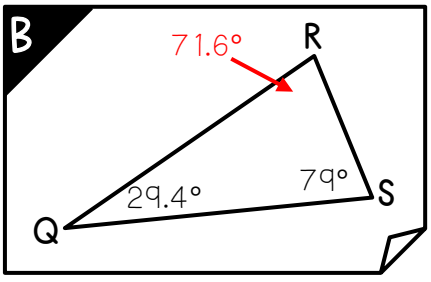
b. Angle ZXY corresponds with side length ZY

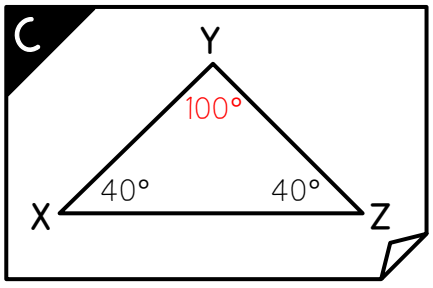
c. Angle YZX corresponds with side length YX



14. Find the missing angle measure in each triangle below.







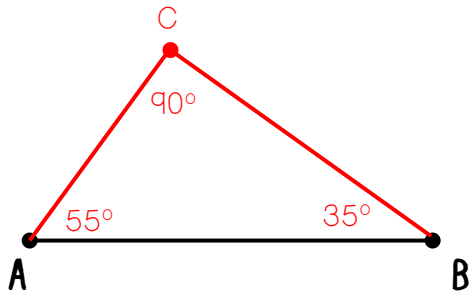
15. Three students wrote side lengths that they thought would form a triangle. Which student(s) were correct? Justify your response.

KEISHA	MIGUEL	RALPHIE
10 cm, 15 cm, 24, cm	21 cm, 7 cm, 6 cm	9 cm, 22 cm, 11cm

Ex: Keisha is correct because the sum of any two of her side lengths is greater than the third side.

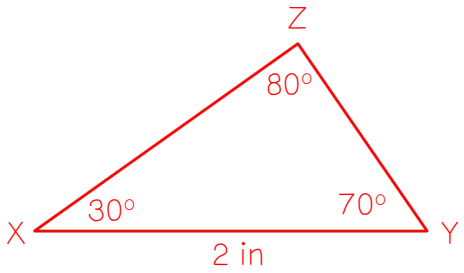
I CAN CONSTRUCT TRIANGLES.

16. Marcella draws the line segment shown below to construct a triangle. Finish the construction so that $m\angle A = 55°$ and $m\angle B = 35°$.



What is the measure of $\angle ACB$? 90°

17. Construct triangle XYZ, where the $m\angle YXZ = 30°$, the $m\angle XYZ = 70°$, and the length of $\overline{XY}$ is 2 inches.



I CAN DETERMINE THE CONDITIONS FOR A UNIQUE TRIANGLE, MORE THAN ONE TRIANGLE, OR NO TRIANGLE.

18. The cards below contain clues. Determine whether the conditions will result in one unique triangle, more than one triangle, or no triangle. Justify your solution with a sketch and description below.

A
$\triangle ABC$
AB is 6.3 cm
BC is 4.2 cm
CA is 10.4 cm

B
$\triangle DEF$
DE is 2 cm
EF is 3 cm
FD is 5 cm

C
$\triangle GHI$
$\angle G$ is 80°
$\angle H$ is 42°
$\angle I$ is 58°

a. Card A: Card A does form one unique triangle, because 6.3 + 4.2 > 10.4, 4.2 + 10.4 > 6.3, and 10.4 + 6.3 > 4.2.

b. Card B: Card B does not form a triangle, because 2 + 3 = 5. The other two sides must be greater than 5 (the third side) to form a triangle.

c. Card C: Card C forms more than one triangle because triangles with the same angle measures are similar; the side lengths can vary.

I'VE GOT IT!

What concepts can I ace on the test?

HELP!

What concepts do I need to study?

Unit: Angles & Triangles Test

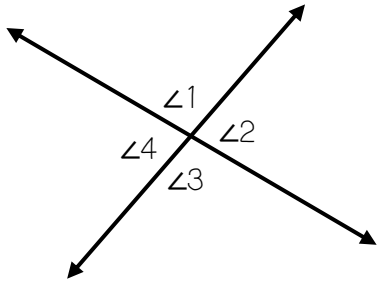
Name _____

Date _____ Pd_____

ANGLES AND TRIANGLES UNIT TEST

Solve the problems below. Be sure to show your thinking.

1. Which of the angles below are vertical angles?



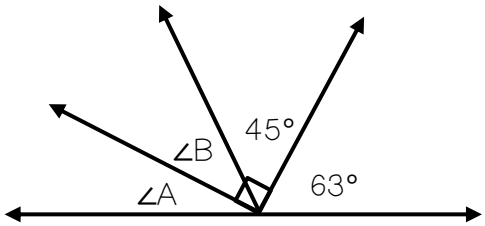
A. ∠1 and ∠3

B. ∠3 and ∠4

C. ∠1 and ∠2

D. ∠4 and ∠1

2. Determine which equation below can be solved to find the value of ∠A.



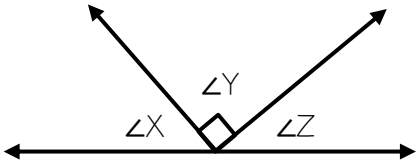
A. x + 45 + 63 = 180

B. x + 90 + 63 = 180

C. x + 45 + 63 = 90

D. x + 90 + 63 = 360

3. Using the diagram below, determine which statement is NOT true.



A. angle Y is 90°

B. angles X and Z are complementary

C. angles X and Z are supplementary

D. angles Y and Z are adjacent

4. Daniel is given the following information to construct a triangle. Determine what type of triangle will be constructed.

80°, 40°, and 40° angles

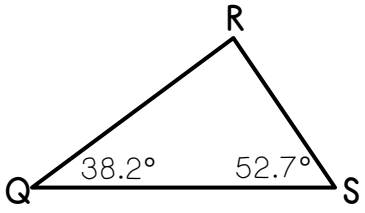
A. a unique triangle

B. more than one triangle

C. no triangle

D. a right triangle

5. Triangle QRS is shown below. Use the information given to determine the measure of ∠R.



89.1°

6. Which three lengths cannot be the lengths of the sides of a triangle?

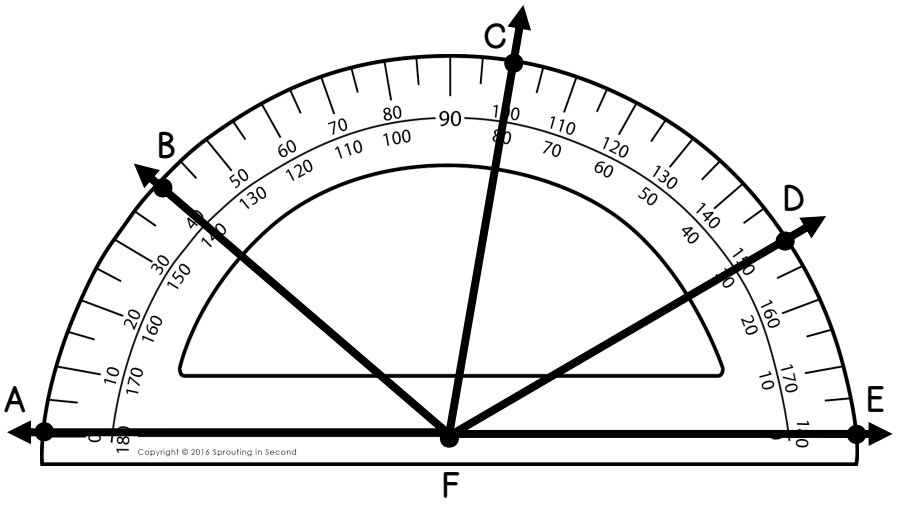
A. 23 m, 17 m, 14 m

B. 11 m, 11 m, 12 m

C. 5 m, 7 m, 8 m

D. 21 m, 6 m, 10 m

Use the protractor below to answer questions 7-10.



7. What is the measure of ∠BFC?

A. 60°
B. 110°
C. 70°
D. 140°

8. Which of the following is a set of complementary angles?

A. ∠CFD and ∠EFD
B. ∠AFB and ∠DFE
C. ∠AFC and ∠DFC
D. ∠BFC and ∠DFE

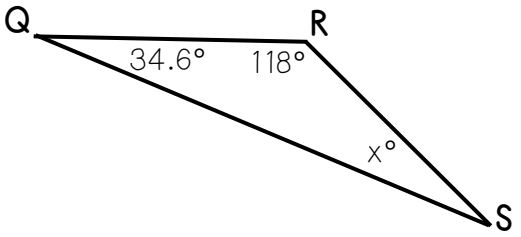
9. Which pair of angles is an example of supplementary angles?

A. ∠AFB and ∠EFC
B. ∠AFC and ∠DFE
C. ∠AFD and ∠DFC
D. ∠AFD and ∠EFD

10. Which of the following is NOT a true statement?

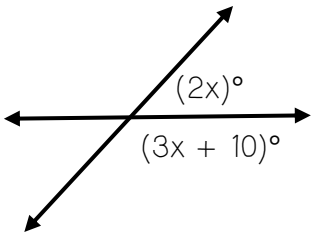
A. ∠EFC measures 80°
B. ∠BFC and ∠DFE have a sum of 90°
C. ∠AFD measures 130°
D. ∠AFB and ∠CFD are complementary

11. Using the triangle below, set up and solve an equation in order to find the value of x.



27.4

12. Find the measure of the largest angle in the diagram below.



112°

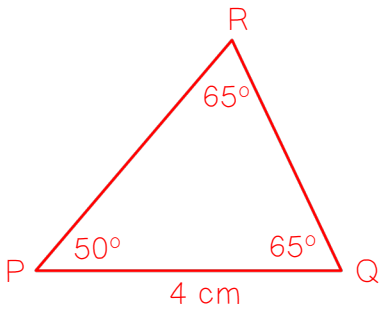
13. Various pieces of string are cut at different lengths. Stephanie selects three pieces that measure 4.5 cm, 6 cm, and 8.5 cm. Determine what type of triangle Stephanie will form.

A. a unique triangle
B. more than one triangle
C. no triangle
D. a right triangle

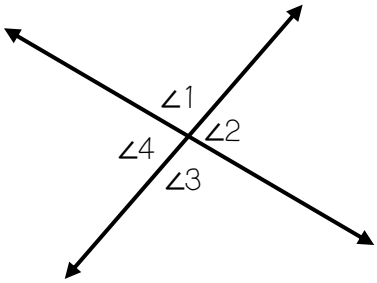
14. Two sides of a triangle have lengths of 7 ft and 15 ft. Which inequality represents the possible length for the third side, x?

A. $8 < x < 22$
B. $8 < x < 15$
C. $7 < x < 15$
D. $8 < x < 7$

15. Construct triangle PQR, where the $m\angle P = 50°$, the $m\angle Q = 65°$, and the length of $\overline{PQ}$ is 4 cm.



16. The measure of ∠1 is 95°. Which of the following is NOT a true statement about the angles shown below?



A. The measure of ∠3 is 95°.
B. The measure of ∠4 is 105°.
C. The measure of ∠2 is 85°.
D. ∠2 and ∠4 are vertical angles.

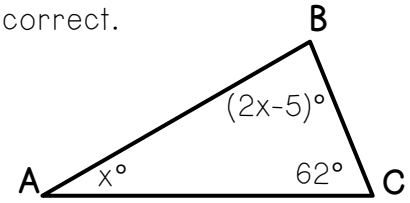
17. Which of the following conditions would allow for more than one possible triangle construction?

A. Three angles that measure 102°, 37°, and 41°.
B. $m\angle R = 26°$, $m\angle S = 79°$, $m\angle T = 80°$
C. side lengths of 14 ft, 20 ft, and 15 ft
D. Three line segments that measure 10 in, 20 in, and 6 in.

18. In triangle JKL, ∠J measures 25.8°, and ∠K is a right angle. What is the measure of ∠L?

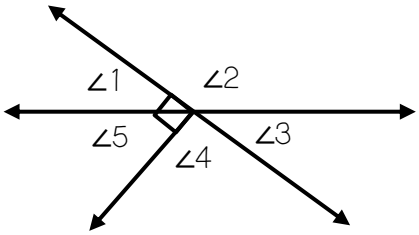
64.2°

19. Using the diagram below, determine which statement is correct.



A. The measure of ∠ABC is 77°.
B. The measure of ∠BCA is obtuse.
C. The measure of ∠CAB is 23°.
D. The value of x is 29.

20. What is the relationship between ∠1 and ∠5?



A. vertical and congruent
B. complementary and adjacent
C. supplementary and adjacent
D. supplementary and vertical