

Name _____

Analytic Geometry

Date _____ Period _____

FBM3 Review

Basics of Geometry

Solve the equations.

1) $3(x - 1) + 3 = 9$

2) $\frac{1}{3}(x + 4) = 5$

3) The Pythagorean Theorem is $c^2 = a^2 + b^2$. However, you are often given the theorem a different way ($a^2 + b^2 = c^2$). What property allows the use of this order?

4) How would you explain the difference between a "statement" and a "reason" in a proof?

Justify the following statements:

5) If $x=100$, then $100=x$. _____

6) If $AB=CD$ and $CD=EF$, then $AB=EF$. _____

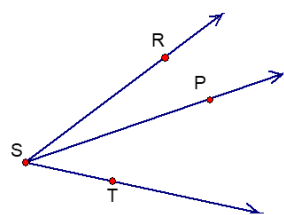
7) $JK=JK$ _____

8) If $x=30$, then $2x=60$. _____

9) If $5x=20$ and $x=4$, then $5(4)=20$. _____

10) If $x=y$, then $x-5=y-5$. _____

11) There are 3 angles in this diagram, name each angle.



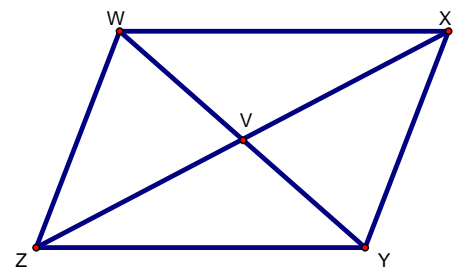
12) Mark the figure with the given information.

$$\overline{WX} \cong \overline{YZ}$$

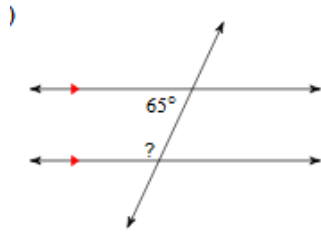
$$\overline{ZW} \cong \overline{XY}$$

$$\angle WVX \cong \angle YVZ$$

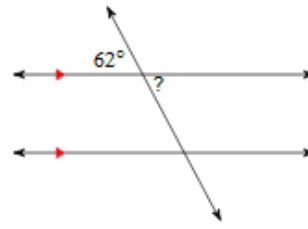
$$\angle WZV \cong \angle YXZ$$



Find the measure of the angle indicated

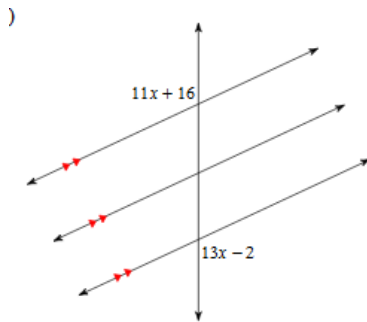


- A) 120° B) 130°
 C) 100° D) 115°

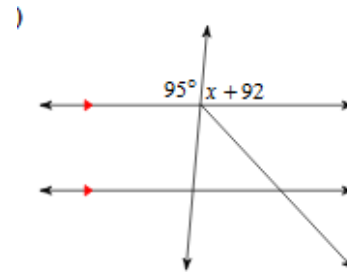


- A) 95° B) 117°
 C) 101° D) 62°

Solve for x.

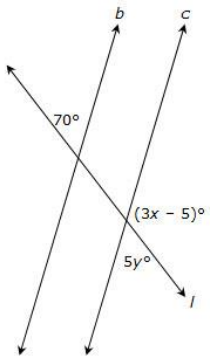


- A) 9 B) -2
 C) 6 D) 7

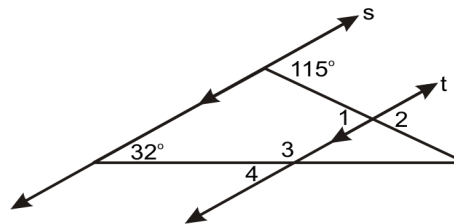


- A) 6 B) -5
 C) -7 D) 11

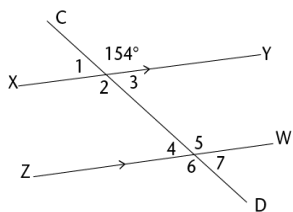
17) Solve for x and y



18) Solve for every numbered angle



19) Solve for the following angles



$m\angle 1$

$m\angle 5$

$m\angle 6$

$m\angle 7$

Module 4: Congruence and Triangles

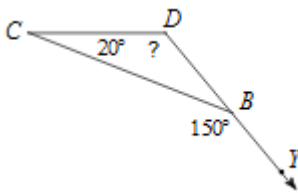
20) If $\triangle BAX \cong \triangle TER$, name the six congruent pairs.

21)

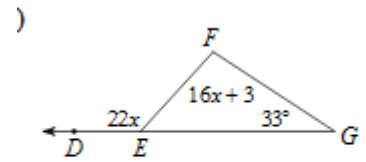
Apply the dilation D to the polygon with the given vertices. Name the coordinates of the image points. Identify and describe the transformation.

$$D:(x, y) \rightarrow (4x, 4y)$$

$A(2, 1), B(4, 1), C(4, -3)$



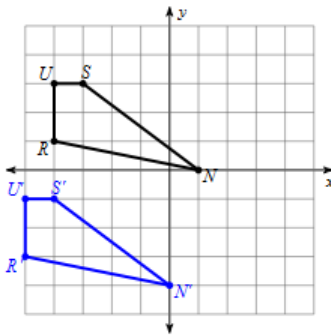
22)



- A) 10
- B) 12
- C) 6
- D) 3

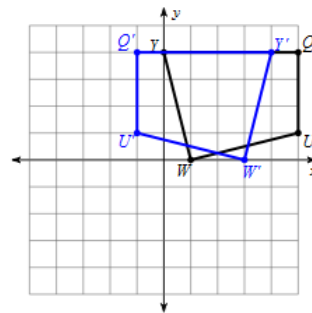
23) Find $m\angle DEF$

Write a rule to describe each transformation.



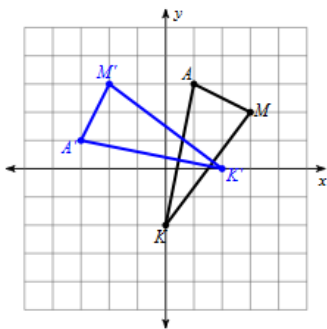
- A) translation: $(x, y) \rightarrow (x - 1, y - 4)$
- B) rotation 90° clockwise about the origin
- C) rotation 180° about the origin
- D) reflection across the y -axis

24)



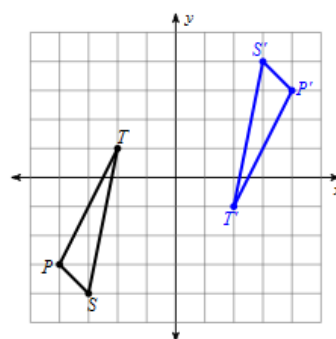
- A) reflection across $y = 1$
- B) rotation 90° counterclockwise about the origin
- C) translation: $(x, y) \rightarrow (x - 2, y - 4)$
- D) reflection across $x = 2$

25)



- A) rotation 90° counterclockwise about the origin
- B) rotation 180° about the origin
- C) translation: $(x, y) \rightarrow (x + 1, y - 3)$
- D) translation: $(x, y) \rightarrow (x - 3, y - 2)$

26)



- A) reflection across the x -axis
- B) reflection across $y = -2$
- C) translation: $(x, y) \rightarrow (x + 1, y + 3)$
- D) rotation 180° about the origin

27)

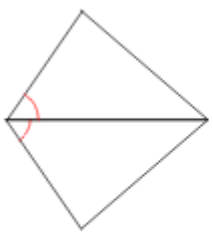
28) The measures of the angles of a triangle are $2x + 10$, $3x$ and $8x - 25$. Solve for x .

Module 5: Proving Triangles Congruent

29) List all of the ways that you learned to prove triangles congruent.

30) What does CPCTC stand for?

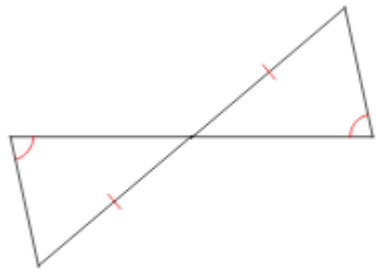
State if the triangles are congruent. If so, state the reason.

31) 

A) Not congruent
C) SSS

- B) HL
D) SAS

31)

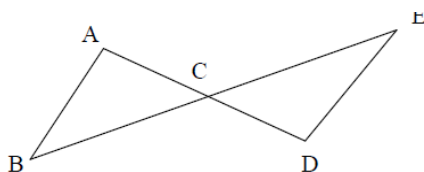
33) 

A) Not congruent
C) SSS

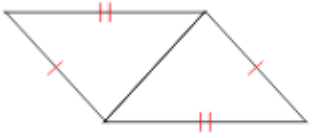
- B) AAS
D) SAS

33)

35) Given: C is the midpoint of \overline{AD} and \overline{BE}
Prove: $\triangle ABC \cong \triangle DEC$



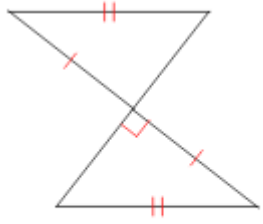
35)

32) 

A) ASA
C) SSS

- B) Not congruent
D) AAS

32)

34) 

A) ASA
C) HL

- B) AAS
D) SSS

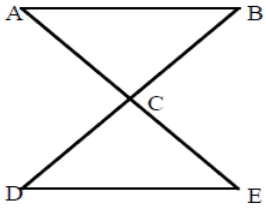
34)

Statements	Reasons

36)

Given: $\overline{AC} \cong \overline{EC}$
 C bisects \overline{BD}

Prove: $\overline{AB} \cong \overline{ED}$

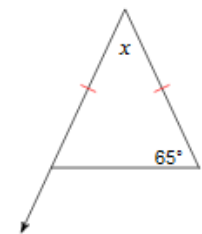


Statements	Reasons

37) Draw an isosceles triangle and label its angles and sides.

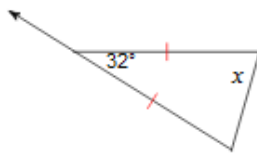
38) In an Isosceles triangle, one of the base angles has a measure of 20° . What are the measures of the other base angle and the vertex angle?

39)



- A) 33°
- B) 39°
- C) 59°
- D) 50°

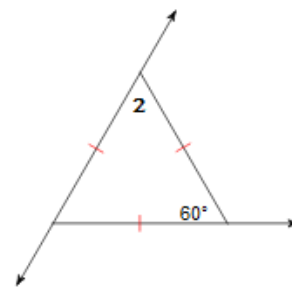
40)



- A) 53°
- B) 74°
- C) 97°
- D) 87°

41)

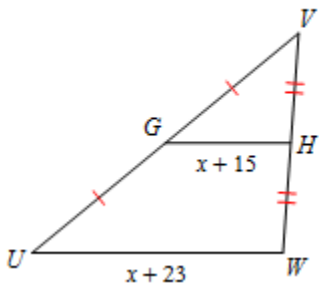
$$m\angle 2 = x + 67$$



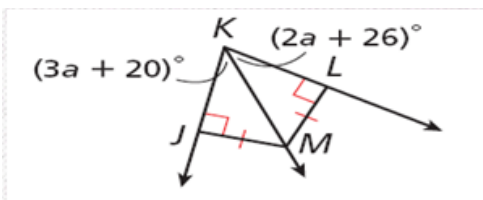
- A) -7
- B) -8
- C) -11
- D) 11

Module 6: Special Points and Segments in Triangles

42)

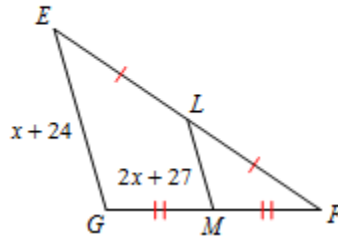


45) Solve for a

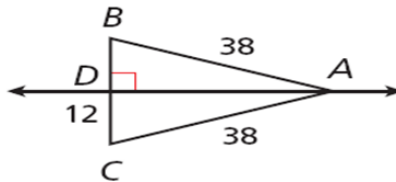


43)

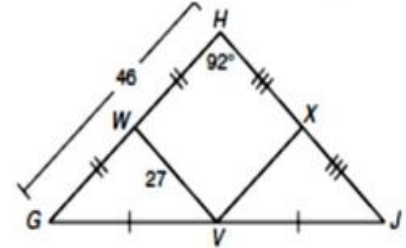
Find EG



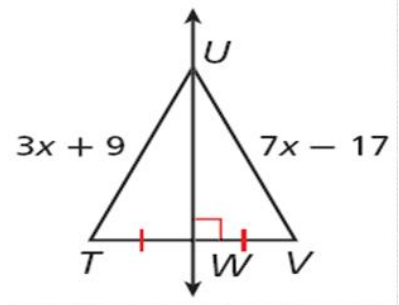
46) Find BC



44) Find VX , HJ , and $m\angle VWH$



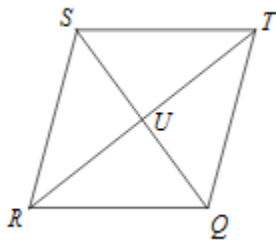
47) Find UV



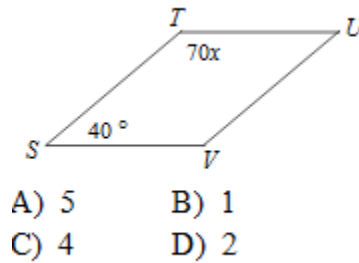
Module 7: Proving Theorems about Parallelograms

48) Solve for x .

$RT = 14$
 $UT = x + 2$



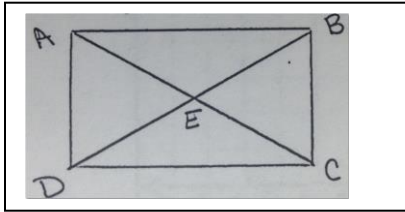
49) Solve for x .



- A) 5 B) 1
- C) 4 D) 2

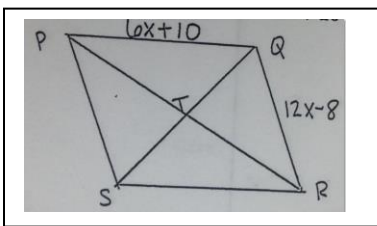
50) Name the 5 properties of a parallelogram.

ABCD is a rectangle. $AD=30$, $DB=26$, $m\angle BAE = (3x + 2)$, $m\angle DCE = (6x - 7)$. Find each of the following measures.



- 51) AE 52) $m\angle ADC$ 53) $m\angle BAE$ 54) BC

PQRS is a rhombus. The $m\angle STR = 5z + 10$ and the $m\angle TRS = 30^\circ$. Find each of the following measures.



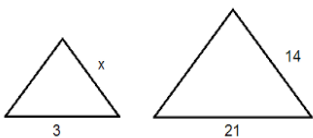
- 55) z 56) x 57) SR 58) $m\angle SRQ$

Module 8: Similarity

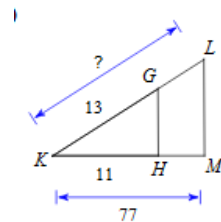
59) What is the definition of similar figures?

60) What are the 3 ways you learned to prove triangles are similar?

61) Solve for x.

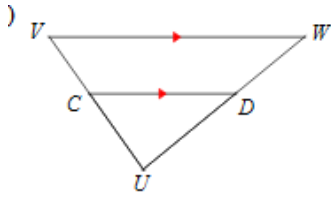


62) Find the missing length in the similar triangles.



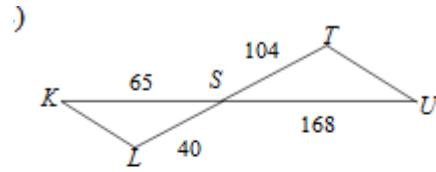
- A) 108 B) 91
C) 136 D) 73

State if the triangles are similar. If so, state the reason and the similarity statement.



$\triangle UVW \sim$ _____

- A) similar; AA similarity; $\triangle UDC$
- B) similar; SSS similarity; $\triangle UDC$
- C) not similar
- D) similar; AA similarity; $\triangle UCD$



$\triangle STU \sim$ _____

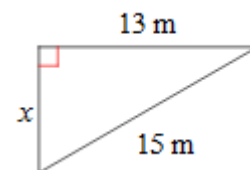
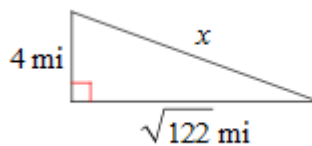
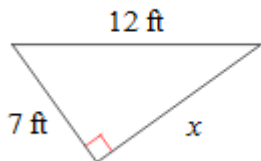
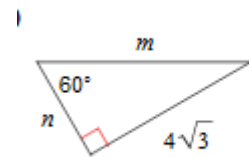
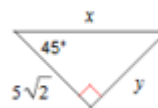
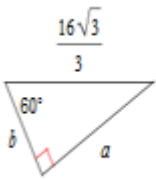
- A) similar; SAS similarity; $\triangle SLK$
- B) not similar
- C) similar; SAS similarity; $\triangle KSL$
- D) similar; SAS similarity; $\triangle SKL$

Module 9: Right Triangles

65) Draw and label each of the special right triangles.

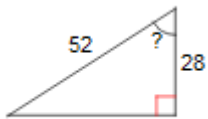
66) What is the Pythagorean Theorem?

Find the missing side lengths. Leave your answers as radicals in simplest form.



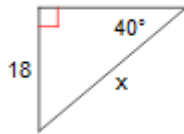
Module 10: Trigonometry

74) What is the $\sin 51^\circ$?



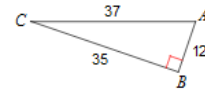
76)

75)



77)

$\sin C$



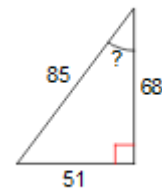
A) $\frac{35}{12}$

B) $\frac{12}{35}$

C) $\frac{37}{35}$

D) $\frac{12}{37}$

78)



79)

A diagram showing a hot air balloon at a height of 165 m from the ground. A building is 50 m away from the launch point. A dashed horizontal line extends from the balloon to the building. The angle of depression from the balloon to the building is marked with a question mark. A right-angle symbol is at the launch point.

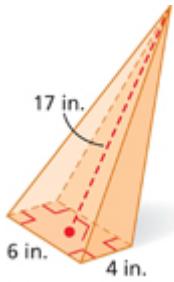
An observer in a hot-air balloon sights a building that is 50 m from the balloon's launch point. The balloon has risen 165 m. What is the angle of depression from the balloon to the building? Round to the nearest degree.

Module 11: Area and Volume

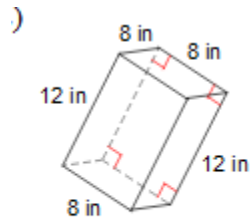
80) A globe has a diameter of 12 inches. What is the volume of the northern hemisphere?

Find the Volume of the following figures:

81)

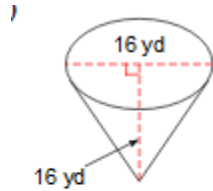


82)



- A) 538 in^3 B) 768 in^3
C) 593 in^3 D) 605 in^3

83)



- A) $341.33\pi \text{ yd}^3$
B) $1365.33\pi \text{ yd}^3$
C) $508.73\pi \text{ yd}^3$
D) $448.9\pi \text{ yd}^3$

84) Find the surface area of a sphere with a volume of $972\pi \text{ ft}^3$.

85) What is the circumference of a circle whose area = $81\pi \text{ ft}^2$?

Module 13: Radicals and Polynomials

86) $\sqrt{32}$

87) $-4\sqrt{3} \cdot -2\sqrt{15}$

88) $3\sqrt{3} + 2\sqrt{27} - \sqrt{12}$

89) $\sqrt{2}(4\sqrt{6} + \sqrt{2})$

90) $(-4 + \sqrt{3})(-1 + \sqrt{3})$

91) $(-1 - 5x - 4x^2) - (-8x^5 + 6x - 7x^3 + 5x^4) + (-5 - x^4)$

$$92) (-5x^2 + 4x^3) - (x^3 + 8x^2)$$

$$93) (4x+6)(8x-3)$$

$$94) (6x + 7)(4x^2 + 6x - 8)$$