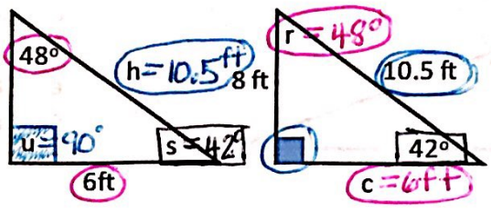
Quarterly Assessment 2 STUDY GUIDE

Name: Key Date: _____ Per: _____

1. The two triangle shaped rooms are congruent. Find the missing side lengths and angle measures.



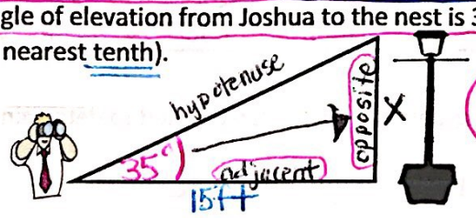
a. c = 8 ft r = 48° u = 90° s = 42° h = 10.5 ft
b. c = 6 ft r = 48° u = 90° s = 42° h = 6 ft
c. c = 6 ft r = 48° u = 90° s = 42° h = 10.5 ft
d. c = 6 ft r = 48° u = 42° s = 90° h = 6 ft

2. A bird makes a nest on the top of a lamppost. Joshua stands 15 feet from the lamp post to look at the birds nest. The angle of elevation from Joshua to the nest is 35°. Find the height of the lamppost (Round to the nearest tenth).

$\tan 35° = \frac{x}{15}$

$15 \tan 35° = x$

$10.5ft = x$



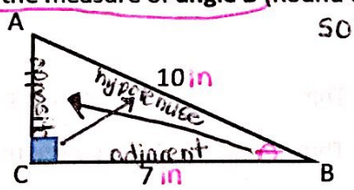
The lamppost is 10.5 ft tall!

3. If the value of cos 64° = .39, then sin x = .39. What is the value of x?

$\cos 64 = \sin(90-64) = .26$ $X = 26$

Remember the angles must add to 90° (64 + 26)

4. A right triangle (shown blow) has a hypotenuse that is 10 inches in length and a leg that is 7 inches in length. Find the measure of angle B (Round to the nearest tenth).



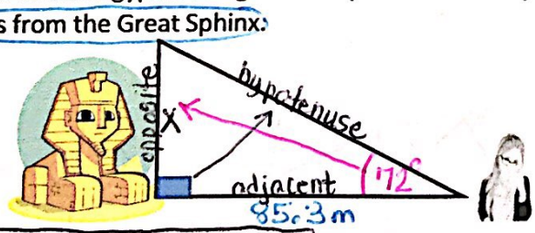
SOH CAH TOA

$\cos\theta = \frac{7}{10}$

$\theta = \cos^{-1}\frac{7}{10} = 45.6°$

$m\angle B = 45.6°$

5. Hope is in Giza Egypt looking at the top of the Great Sphinx with a 72° of elevation. She is 85.3 meters from the Great Sphinx.



SOH CAH TOA

$\tan 72° = \frac{x}{85.3}$

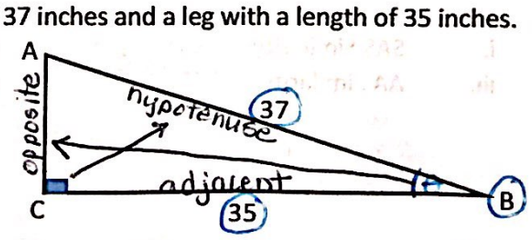
$85.3 \tan 72° = x$

$262.5m = x$

How tall is the Great Sphinx statue (Round to the nearest tenth)?

The Great Sphinx is 262.5 m tall

6. A right tringle has a hypotenuse with a length of 37 inches and a leg with a length of 35 inches.



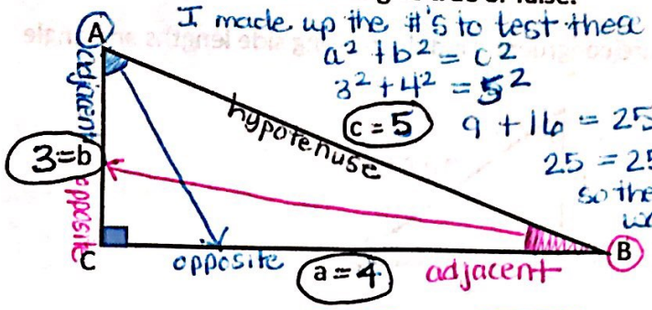
What is Cos B?

a. $\frac{37}{35}$ b. $\frac{35}{37}$ c. $\frac{37}{12}$ d. $\frac{12}{37}$

$\cos\theta = \frac{A}{H} = \frac{35}{37}$

7. Using the triangle, label the triangles true or false.

Blue = ∠A
Pink = ∠B



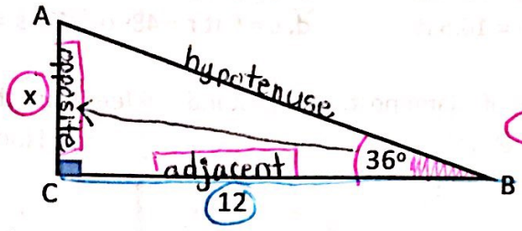
I made up the #'s to test these
$a^2 + b^2 = c^2$
$3^2 + 4^2 = 5^2$
$c = 5$
$9 + 16 = 25$
$25 = 25$
so these #'s work!

$\frac{4}{5}$ $\frac{3}{5}$

a. Sin A = Sin B (4/5, 4/5) False
b. Sin A = Cos B (4/5, 4/5) TRUE
c. Cos A = Sin B (3/5, 3/5) TRUE
d. Cos A = Cos B (3/5, 4/5) False
e. Tan A = Tan B (4/3, 3/4) False
f. Tan A = Tan C (4/3, ↑ No such thing!) False

8. In the following diagram, m< B = 36° and BC = 12 ft. Which equation can be used to find the value of x?

SOH CAH TOA



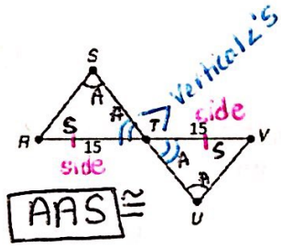
a. x = 12sin 36°
b. x = 12cos 36°
c. x = 12tan 36°
d. $x = \frac{12}{\tan 36^\circ}$

$\tan 36 = \frac{x}{12}$

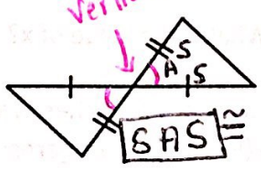
$12 \tan 36 = x$

9. MATCHING: What congruence theorem can be used to determine that the two triangle are congruent?

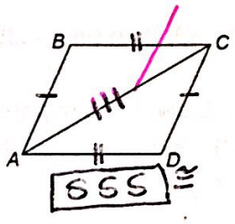
a.



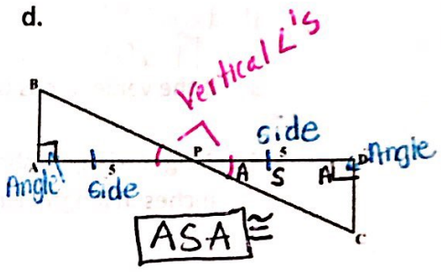
b.



c.



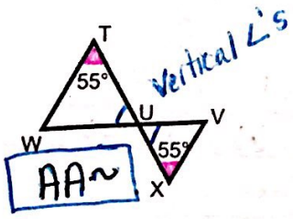
d.



i. AAS Congruence Thm — side is NOT between 2 ∠'s
ii. SSS Congruence Thm — 3 sides are marked as ≅
iii. SAS Congruence Thm — Angle is between 2 sides
iv. ASA Congruence Thm — side is between 2 angles

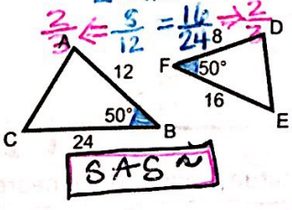
10. MATCHING: What similarity postulate can be used to determine that the two trigangles are similar?

a.



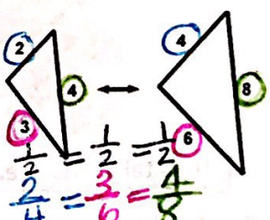
b.

1 ANGLE
∠B ≅ ∠F
2 SIDES PROPORTIONAL



$\frac{2}{4} = \frac{5}{12} = \frac{16}{24} = \frac{2}{2}$

c.



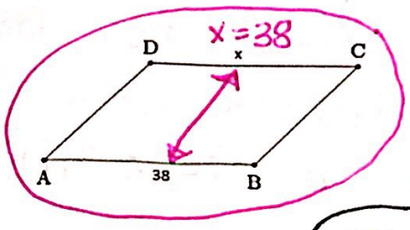
$\frac{1}{2} = \frac{1}{2} = \frac{1}{2}$

$\frac{2}{4} = \frac{3}{6} = \frac{4}{8}$

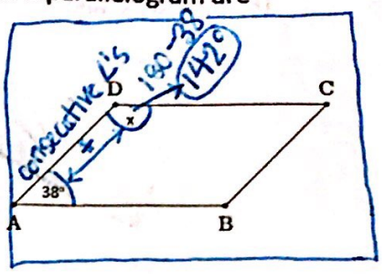
i. SAS Similarity - 2 sides are proportional, 1 ∠ is ≅ equal
ii. SSS Similarity → 3 sides are PROPORTIONAL
iii. AA Similarity ↓ 2 pairs of ∠'s are EQUAL
iv. Not Similar

* PROPORTIONAL means they simplify to the same FRACTION!

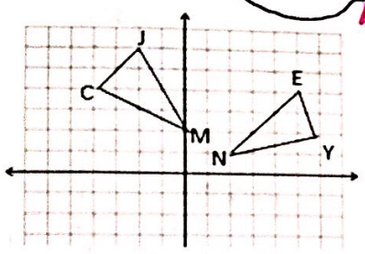
11. Use the image below for the following
    a. Circle the image that represents the theorem, opposite sides of a parallelogram are congruent.
    b. Put a rectangle around the image that represent the theorem, consecutive angles of a parallelogram are supplementary
    c. Shade in the image that represent the theorem, opposite angles of a parallelogram are congruent.



x = 38



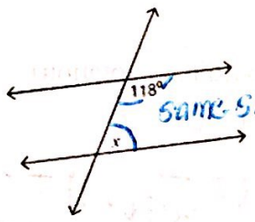
12. In the diagram below $\Delta MCJ \cong \Delta NYE$. Mark the statements True or False.



a. $< M \cong < Y$ F
b. $< M \cong < N$ TRUE
c. $< C \cong < Y$ TRUE
d. $JM \cong EN$ TRUE

LOOK @ The congruence statement

13. Using the diagram below, find the value of x.

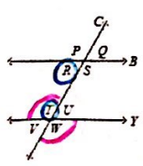


same-side interior ∠'s are supplementary (add to = 180)

118 + x = 180
-118 -118
x = 62°

14. Use the image and the proof table to organize the following reasons next to the correct statement.

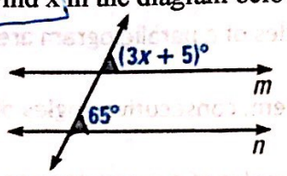
Given that <R and <W are supplementary, prove B||Y



Statement	Reason
<W and < R are supplementary	1. Given
$\angle W \cong \angle T$	2. Vertical Angles
$< T$ and $< R$ are supplementary	3. Substitution
B // Y	4. Same-Side Interior Angles Converse

a. Given
b. Substitution
c. Vertical Angles
d. Same-Side Interior Angles Converse

15. Find x in the diagram below:



Corresponding ∠'s are in the same positions! They are EQUAL

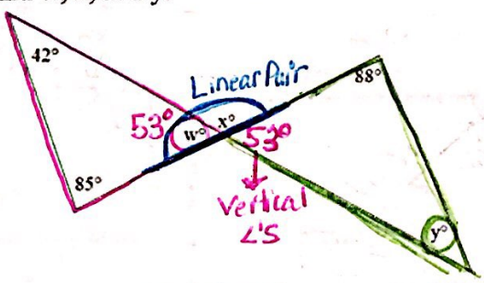
$3x+5 = 65$

$-5 \quad -5$

$\frac{3x}{3} = \frac{60}{3}$

$x = 20$

16. Find w, x, and y.

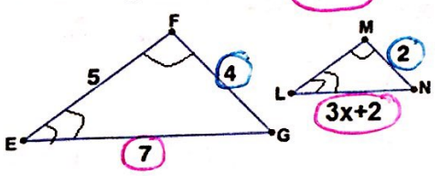


$w = 53^\circ$ $180 - 85 - 42$ · Triangle Sum

$x = 127^\circ$ $180 - 53$ Linear Pair ($w + x = 180$)

$y = 39^\circ$ $180 - 88 - 53$ Triangle Sum

17. The following triangles are similar. Find the value of x.



similar
BIG Δ
small Δ

$\frac{7}{3x+2} = \frac{4}{2}$

$4(3x+2) = 14$

$12x + 8 = 14$

$-8 \quad -8$

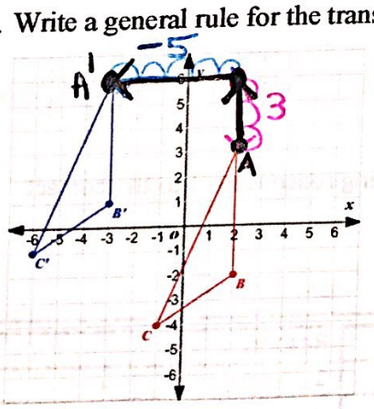
$\frac{12x}{12} = \frac{6}{12}$ simplify

$x = 1/2$

18. Define perpendicular lines:

two lines that intersect to form a 90° angle

19. Write a general rule for the transformation below (using coordinate notation):



$A(2,3) \Rightarrow A'(-3,6)$

$(x, y) \Rightarrow (x - 5, y + 3)$

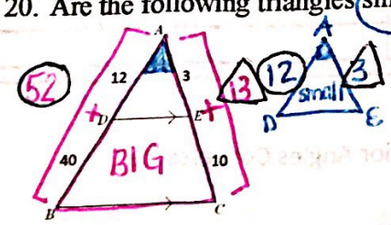
Left 5, up 3

Coordinate Notation

20. Are the following triangles similar? If so, how?

2 PROPORTIONAL SIDES

1 congruent ANGLE
$\angle A = \angle A$



BIG Δ / small Δ

$\frac{52}{12} = \frac{13}{3}$

Simplified

$4.3 \quad 4.3$

OR OR

$\frac{13}{3} = \frac{13}{3}$

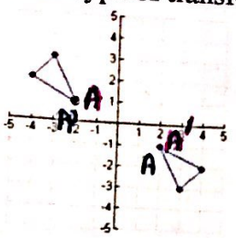
Simplified

same #

means yes, they are similar!

SAS ~

21. What type of transformation is pictured below?



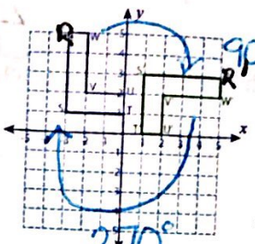
A(-2, 1) A'(2, -1)

A(2, -1) A'(-2, 1)

Which transformation makes you change BOTH SIGNS

What happened?
change sign on BOTH x and y
Change sign on BOTH x and y
180° Rotation

22. (90 clockwise)
90 counterclockwise
180 clockwise
180 counterclockwise
270 clockwise
(270 counterclockwise)



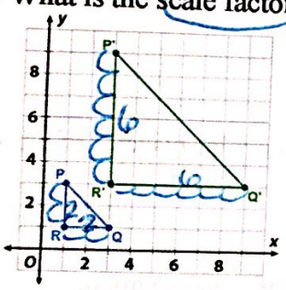
90° CW
R(-3, 5)
R'(5, -3)
What happened?
switch x and y AND change sign on OLD x

270° counter CW

Which **pair** of rotations (listed above) are pictured above?

90° CW and 270° CCW

23. What is the scale factor of dilation for the following transformation?

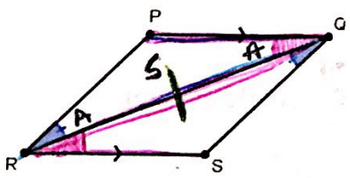


scale factor ⇒ New (Image) / OLD (Pre-Image) ⇒ 6/2 ⇒ 3

Enlargement b/c it is BIGGER than 1

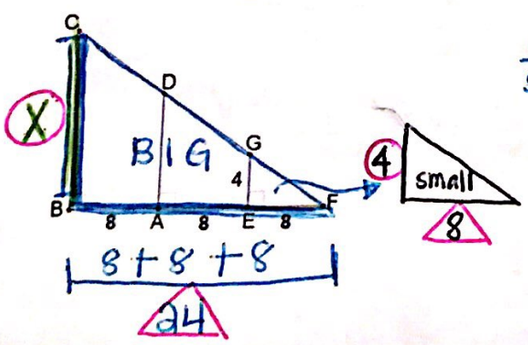
24. Fill in the reasons for each of the following statements in the proof below:

Given: $\overline{PQ} \parallel \overline{RS}$, $\angle PRQ \cong \angle SQR$
Prove: $\triangle PQR \cong \triangle SRQ$



Statements	Reasons
1. $\overline{PQ} \parallel \overline{RS}$	1. Given
2. $\angle PRQ \cong \angle SQR$	2. Given
3. $\angle PQR \cong \angle SRQ$	3. Alt. Interior ∠'s
4. $\overline{RQ} \cong \overline{RQ}$	4. Reflexive Property
5. $\triangle PQR \cong \triangle SRQ$	5. ASA ≅ Postulate

25. Find the length of BC.



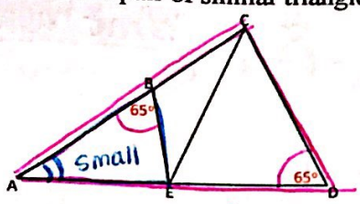
BIG Δ & small Δ ⇒ $\frac{x}{4} = \frac{24}{8}$

$\frac{8x}{8} = \frac{96}{8}$

$x = 12$

Quarterly Assessment 2 Review

26. Name the pair of similar triangles in the following figure:



BIG

$\triangle ABE \sim \triangle ADE$

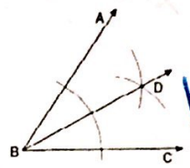
How do you know they are similar? AA~

1st pair of ∠'s $\angle A \cong \angle A$

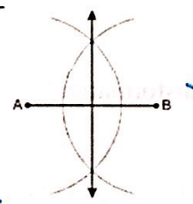
2ND pair of ∠'s $\angle B \cong \angle D$ OR $\angle ABE \cong \angle D$

27. Match each of the following constructions to what is being constructed:

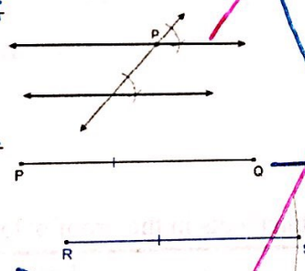
i. F



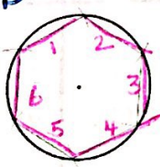
ii. C



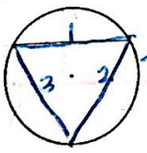
iii. A



iv. D



v. B



vi. E

a. Parallel line through a given point

b. Hexagon inscribed in a circle

c. Perpendicular bisector of a segment

d. Copy of a line segment

e. Equilateral triangle inscribed in a circle

f. Angle bisector