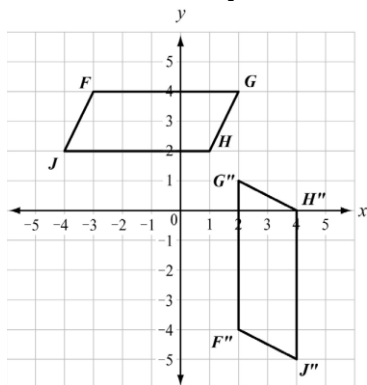


Unit 2 Review

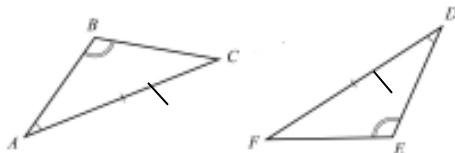
1. Parallelogram $FGHJ$ was translated 3 units down to form parallelogram $F'G'H'J'$. Parallelogram $F'G'H'J'$ was then rotated 90° counterclockwise about point G' to obtain parallelogram $F''G''H''J''$.



Which statement is true about parallelogram $FGHJ$ and parallelogram $F''G''H''J''$?

- a) The figures are both similar and congruent.
- b) The figures are neither similar nor congruent.
- c) The figures are similar but not congruent.
- d) The figures are congruent but not similar.

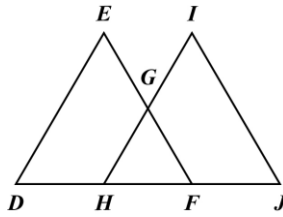
2. Consider the triangles shown.



Which can be used to prove the triangles congruent?

- a) SSS
- b) ASA
- c) SAS
- d) AAS

3. In this diagram, $\overline{DE} \cong \overline{JI}$ and $\angle D \cong \angle J$.



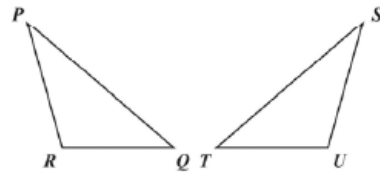
Which additional information is sufficient to prove that $\triangle DEF$ is congruent to $\triangle JIH$?

- a) $\overline{EF} \cong \overline{IH}$ b) $\overline{DH} \cong \overline{JF}$ c) $\overline{HG} \cong \overline{GI}$ d) $\overline{HF} \cong \overline{JF}$

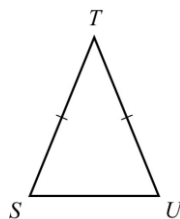
Unit 1 Triangle Theorems, Congruence & Proofs Review

4. Which set of relationships is sufficient to prove that the triangles in this figure are congruent?

- a) $\overline{PR} \cong \overline{SU}$, $\overline{PQ} \cong \overline{ST}$, $\angle Q \cong \angle U$
 b) $\overline{PQ} \cong \overline{PR}$, $\overline{ST} \cong \overline{SU}$, $\overline{RQ} \cong \overline{TU}$
 c) $\overline{RQ} \cong \overline{TU}$, $\angle R \cong \angle U$, $\angle P \cong \angle S$
 d) $\angle P \cong \angle S$, $\angle R \cong \angle U$, $\angle Q \cong \angle T$



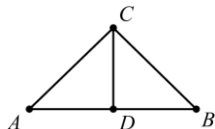
5. In this diagram, $\triangle STU$ is an isosceles triangle where \overline{ST} is congruent to \overline{UT} . The paragraph proof shows that $\angle S$ is congruent to $\angle U$.



It is given that \overline{ST} is congruent to \overline{UT} . Draw \overline{TV} that bisects $\angle T$. By the definition of an angle bisector, $\angle STV$ is congruent to $\angle UTV$. By the Reflexive Property, \overline{TV} is congruent to \overline{TV} . $\triangle STV$ is congruent to $\triangle UTV$ by SAS. $\angle S$ is congruent to $\angle U$ by ____?____.

- a) CPCTC b) Reflexive Property of \cong c) Def. of Right angles d) \angle Congruence Postulate

6. In this diagram, \overline{CD} is the perpendicular bisector of \overline{AB} . The two-column proof shows that \overline{AC} is congruent to \overline{BC} .



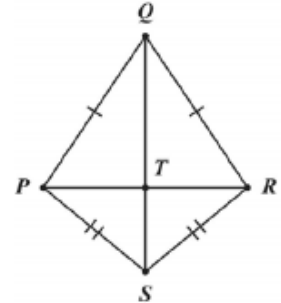
Step	Statement	Justification
1	\overline{CD} is the perpendicular bisector of \overline{AB}	Given
2	$\overline{AD} \cong \overline{BD}$	Definition of bisector
3	$\overline{CD} \cong \overline{CD}$	Reflexive Property of Congruence
4	$\angle ADC$ and $\angle BDC$ are right angles	Definition of perpendicular lines
5	$\angle ADC \cong \angle BDC$	All right angles are congruent
6	$\triangle ADC \cong \triangle BDC$	_____?
7	$\overline{AC} \cong \overline{BC}$	CPCTC

Which theorem would justify step 6?

- a) AAS b) ASA c) SAS d) SSS

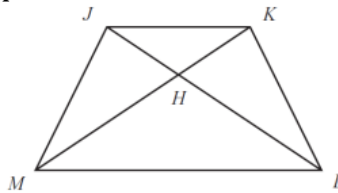
Unit 1 Triangle Theorems, Congruence & Proofs Review

7. Use this diagram of a kite to answer the question.
Which statement can be proved by using the HL postulate?



- a) $\triangle PQR \cong \triangle PSR$
- b) $\triangle PTS \cong \triangle TSR$
- c) $\triangle QPS \cong \triangle SRQ$
- d) $\triangle QTP \cong \triangle QTR$

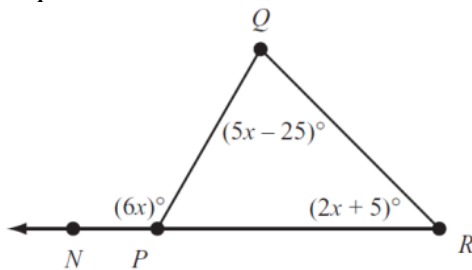
8. In this figure, Gabrielle wants to prove that $\square JLM \cong \square KML$. She knows that $\overline{JM} \cong \overline{KL}$.



What additional information will allow Gabrielle to complete the proof?

- a) $\overline{JL} \cong \overline{KM}$
- b) $\overline{ML} \cong \overline{KM}$
- c) $\overline{JH} \cong \overline{HK}$
- d) $\overline{MH} \cong \overline{LH}$

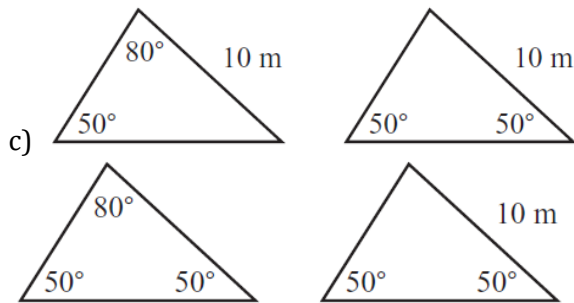
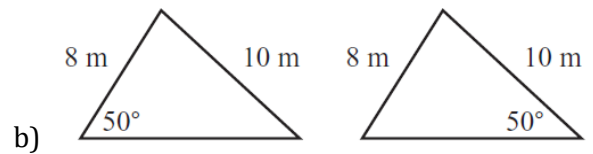
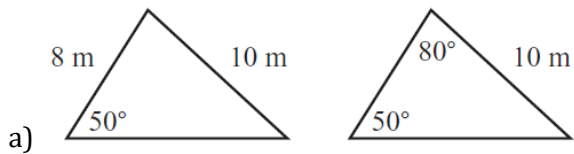
9. Use this diagram to answer the question.



What is the measure of $\angle QPR$?

- a) 15°
- b) 60°
- c) 120°
- d) 175°

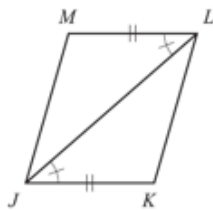
10. Which pair of triangles could be proved congruent?



d)

Unit 1 Triangle Theorems, Congruence & Proofs Review

11. This figure shows quadrilateral JKLM.

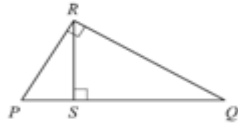


What information will NOT be used to prove that JKLM is a parallelogram?

- a) Show that $\angle JLM \cong \angle LJK$
- b) Show that $\overline{JK} \cong \overline{LM}$
- c) Show that $\triangle JKL \cong \triangle LMJ$
- d) Show that $\triangle JKL \cong \triangle JLM$

12. Which transformation of $\triangle HIJ$ does NOT result in a congruent triangle
- A reflection across the x-axis, followed by a rotation of 180° about the origin
 - A rotation by 180° about the origin, followed by a translation of 2 units left and 3 units down
 - A translation of 1 unit right and 2 units up, followed by a dilation by a factor of 3
 - A dilation by a factor of 2, followed by a dilation by a factor of 0.5

13. Use this triangle to answer the question



This is a proof of the Pythagorean Theorem

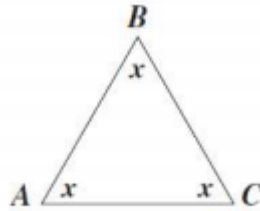
	Step	Justification
1	$\triangle PQR \sim \triangle RPS \sim \triangle QSR$	AA postulate
2	$\frac{PQ}{QR} = \frac{QR}{SQ}$ and $\frac{PQ}{PR} = \frac{PR}{PS}$	Corresponding sides of similar triangles are congruent
3	$QR^2 = PQ \cdot SQ$ and $PR^2 = PQ \cdot PS$	Multiplication property of equality
4	$QR^2 + PR^2 = PQ \cdot SQ + PQ \cdot PS$	Addition property
5	$QR^2 + PR^2 = PQ(SQ + PS)$	Distributive property
6	$QR^2 + PR^2 = PQ(PQ)$	Segment addition postulate
7	$QR^2 + PR^2 = PQ^2$	Simplify

In which step is there a mistake in the proof?

- a) Step 1
- b) Step 2
- c) Step 4
- d) Step 6

Unit 1 Triangle Theorems, Congruence & Proofs Review

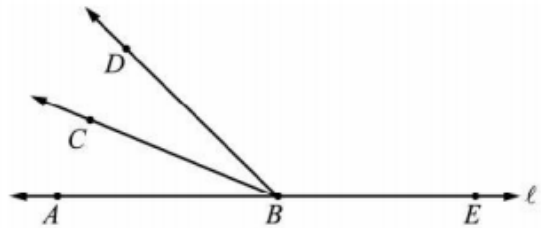
14. Given triangle ABC, which expression BEST represents the sum of the interior angles?



- a) $3x$
- b) $2x^2$
- c) x^3
- d) $2x^2 * x$

15. In the figure below, BC bisects $\angle ABD$, and A, B, and E are all points on line l .

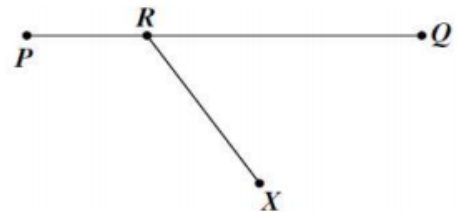
Which angles must be congruent?



- a) $\angle ABC$ and $\angle CBD$
- b) $\angle ABC$ and $\angle CBE$
- c) $\angle ABD$ and $\angle DBE$
- d) $\angle CBD$ and $\angle ABD$

16. On PQ, R is between P and Q. Point X does not lie on PQ and XR is not perpendicular to PQ.

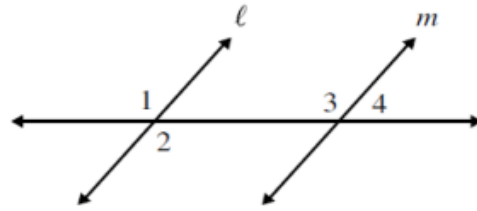
Which of the following describes $\angle XRQ$ and $\angle XRP$?



- a) Complementary angles
- b) Congruent angles
- c) Supplementary angles
- d) Vertical angles

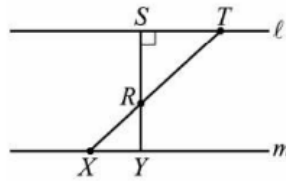
17. In the figure below, l is parallel to m . Which of the following are corresponding angles?

- a) $\angle 1$ and $\angle 2$
- b) $\angle 1$ and $\angle 3$
- c) $\angle 2$ and $\angle 3$
- d) $\angle 3$ and $\angle 4$



18. In the figure below, l is parallel to m . If $RS = ST$, what is the measure of $\angle RXY$?

- a) 30°
- b) 45°
- c) 60°
- d) 90°



Unit 1 Triangle Theorems, Congruence & Proofs Review

19. Which statement about a parallelogram must be true?

- a) All of its sides are the same length.
- b) Its diagonals are the same length.
- c) Its opposite angles have the same measure.
- d) At least one angle is a right angle.

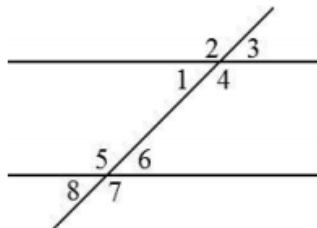
20. An open area at a local high school is in the shape of a quadrilateral. Two sidewalks crisscross this open area as diagonals of the quadrilateral. If the walkways cross at their midpoints and the walkways are equal in length, what is the shape of the open area?

- a) A parallelogram
- b) A rhombus
- c) A rectangle
- d) A trapezoid

21. Which set of information is NOT enough to prove that $\triangle ABC$ is congruent to $\triangle DEF$?

- a) $\angle A \cong \angle D$, $\angle C \cong \angle F$, and $\overline{BC} \cong \overline{EF}$
- b) $\overline{AB} \cong \overline{DE}$, $\overline{BC} \cong \overline{EF}$, and $\angle B \cong \angle E$
- c) $\angle A \cong \angle D$, $\angle C \cong \angle F$, and $\overline{AC} \cong \overline{DF}$
- d) $\angle A \cong \angle D$, $\overline{AC} \cong \overline{DF}$, and $\overline{BC} \cong \overline{EF}$

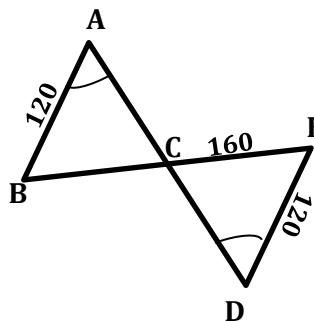
22. A transversal crosses two parallel lines. Which statement should be used to prove that the measures of angles 1 and 5 sum to 180° ?



- a) Angles 1 and 8 are congruent as corresponding angles; angles 5 and 8 form a linear pair.
- b) Angles 1 and 2 form a linear pair; angles 3 and 4 form a linear pair.
- c) Angles 5 and 7 are congruent as vertical angles; angles 6 and 8 are congruent as vertical angles.
- d) Angles 1 and 3 are congruent as vertical angles; angles 7 and 8 form a linear pair.

23. Which postulate or theorem can be used to determine the two triangles are congruent?

- a) ASA Congruence Postulate
- b) SSS Congruence Postulate
- c) AAS Congruence Theorem
- d) SAS Congruence Postulate



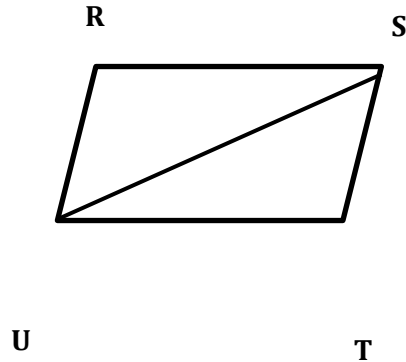
Unit 1 Triangle Theorems, Congruence & Proofs Review

24. Which statement would be used to help find the missing value?



- a) Opposite sides of a parallelogram are supplementary.
- b) Opposite sides of a parallelogram are congruent.
- c) Opposite angles of a parallelogram are supplementary.
- d) Opposite angles of a parallelogram are congruent.

25. In the diagram of quadrilateral RSTU, $RS \parallel UT$, $\angle RSU \cong \angle TUS$, and diagonal \overline{SU} is drawn

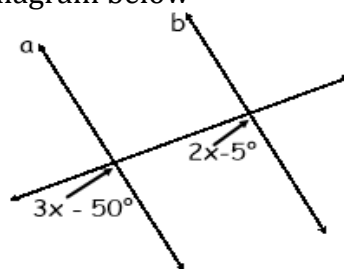


Which method can be used to prove $\triangle RSU$ is congruent to $\triangle TUS$?

- a) AAS
- b) SSA
- c) SAS
- d) SSS

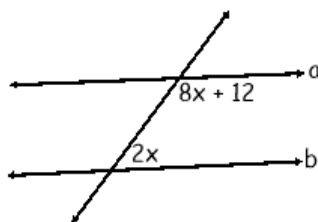
26. Find the value of x in the diagram below

- a) $x = 57$
- b) $x = 45$
- c) $x = 50$
- d) $x = 8$



27. Find the value of x .

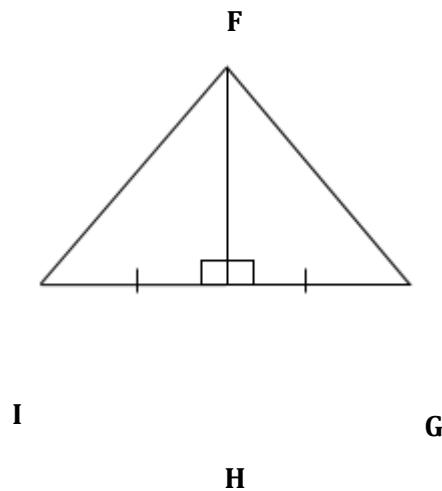
- a) $x = 12.2$
- b) $x = 32$
- c) $x = 10$
- d) $x = 16.8$



Unit 1 Triangle Theorems, Congruence & Proofs Review

28. What are the different ways you can use to prove a shape is a parallelogram?

29. If \overline{FH} is a perpendicular bisector of \overline{IG} , what can we use to prove that \overline{FI} is congruent to \overline{FG}

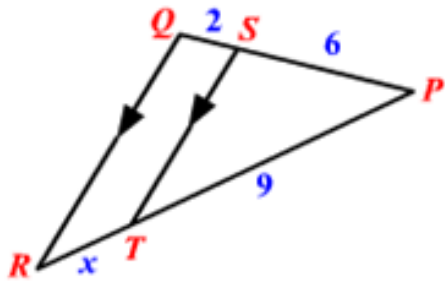


- a) SAS Postulate
- b) Triangle Sum Theorem
- c) SSS Postulate
- d) Vertical angles theorem

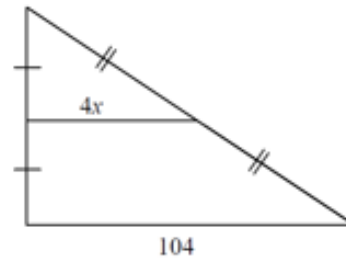
30. Given the statement $\triangle QRS \cong \triangle WXY$, which statement must be true

- a) $\angle S \cong \angle X$
- b) $\angle Q \cong \angle W$
- c) $QS \cong WX$
- d) $SR \cong XY$

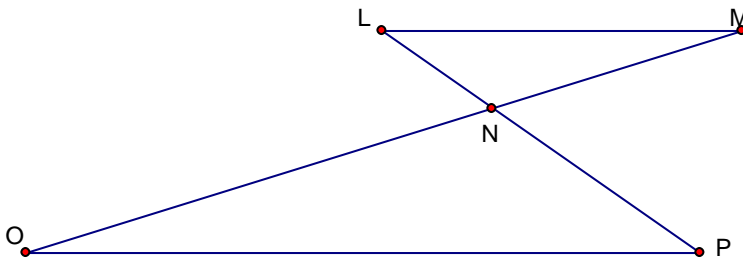
31. Find the value of x .



32. Find x .



In the diagram of $\triangle LMN$ and $\triangle NOP$ below, \overline{LP} and \overline{MO} intersect at N , and $\angle NLM \cong \angle NPO$.



Which angles are congruent?

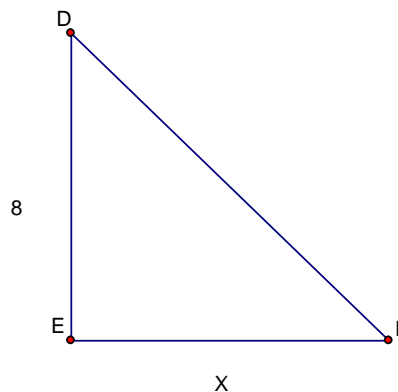
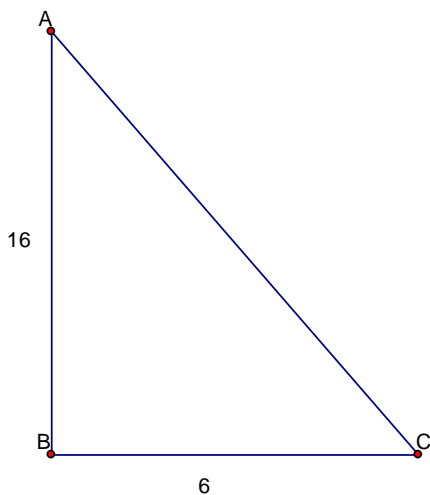
2. Given $\triangle ABC \sim \triangle DEF$ such that $\frac{AB}{DE} = \frac{5}{3}$, which statement is *not* true?

- a. $\frac{BC}{EF} = \frac{5}{3}$
- b. $\frac{AC}{DF} = \frac{5}{3}$
- c. $\angle B \cong \angle E$
- d. $\frac{m\angle A}{m\angle D} = \frac{5}{3}$

3. If $\triangle ABC \sim \triangle ZXY$, $m\angle B = 65$, and $m\angle C = 35$, what is $m\angle Z$?

4. As shown in the diagram below, $\triangle ABC \sim \triangle DEF$, $AB = 16$, $BC = 6$, $DE = 8$, and $EF = x$.

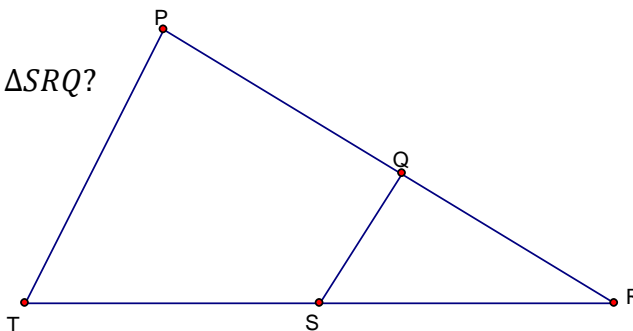
What is the length of \overline{EF} ?



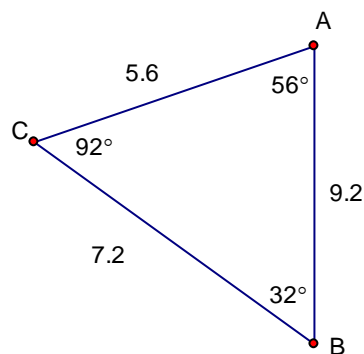
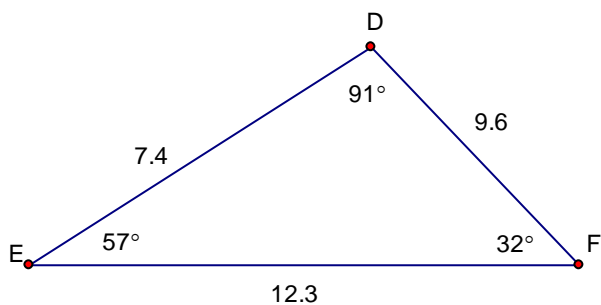
Unit 1 Similarity Review

5. In the diagram below of $\triangle PRT$, Q is a point on \overline{PR} , S is a point on \overline{TR} , \overline{QS} is drawn, and $\angle RTP \cong \angle RQS$.

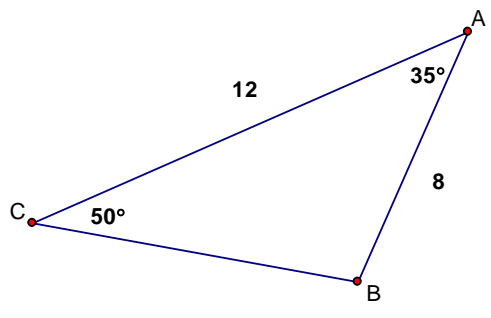
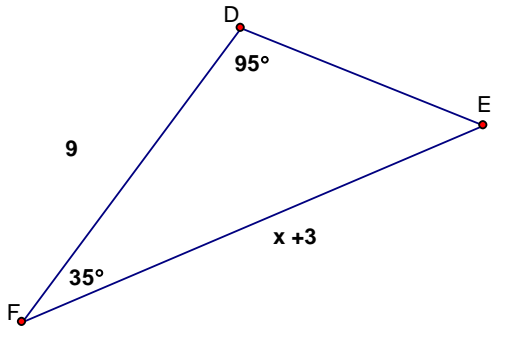
What theorem proves that $\triangle PRT \sim \triangle SRQ$?



6. Are these two triangles similar and if so, why?

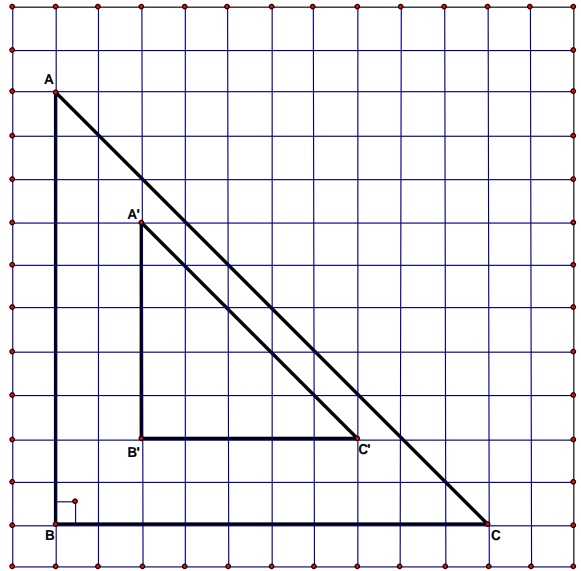


7. The triangles below are similar. Write the similarity statement and determine the value of x .

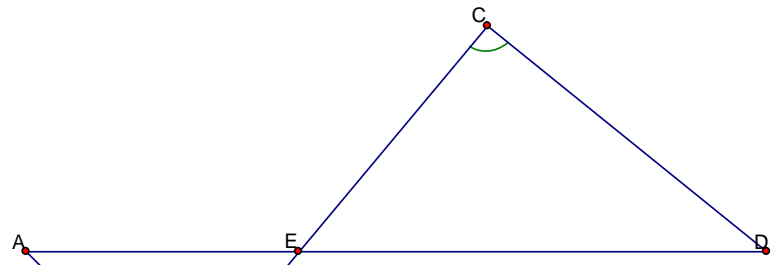


Unit 1 Similarity Review

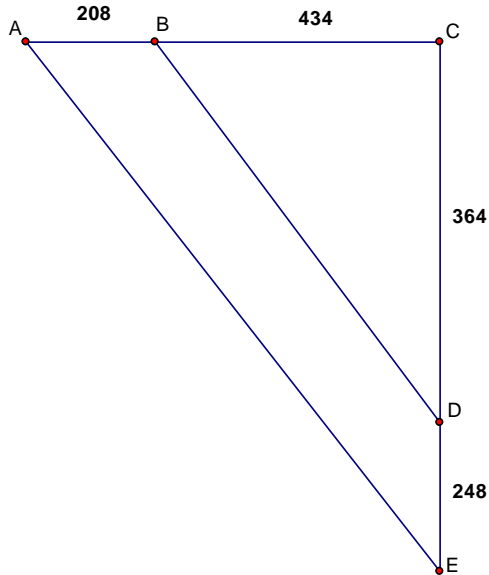
8. Determine the scale factor for the dilation below. Determine whether the dilation is an enlargement or reduction.



9. Determine if the triangles in the figure are similar. If they are, what theorem proves their similarity?

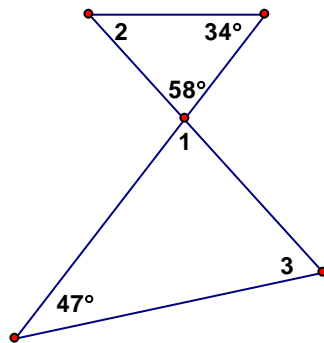


10. Determine if the triangles shown in the figure are similar. If they are similar, describe their similarity (which theorem proves).

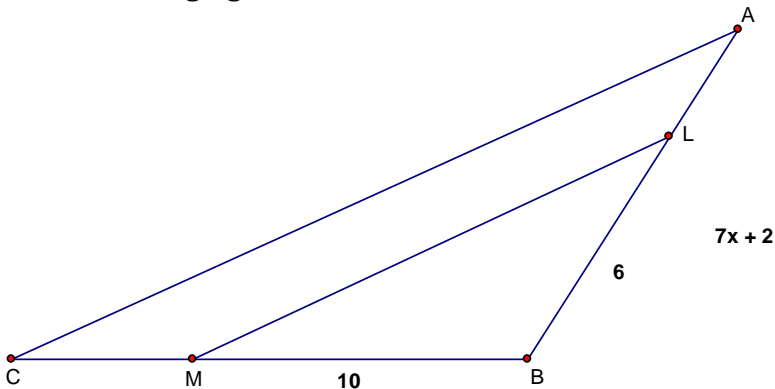


Unit 1 Similarity Review

11. Determine $m\angle 1$, $m\angle 2$, $m\angle 3$.



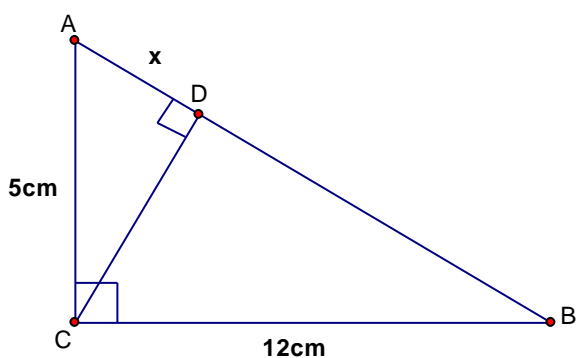
12. In the following figure, $\triangle ABC \sim \triangle LBM$. Find the value of x .



13. What two things have to be true for two triangles to be similar?

14. In the diagram below, the length of the legs \overline{AC} and \overline{BC} of right triangle ABC are 5cm and 12cm, respectively. Altitude \overline{CD} is drawn to the hypotenuse of $\triangle ABC$.

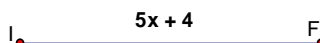
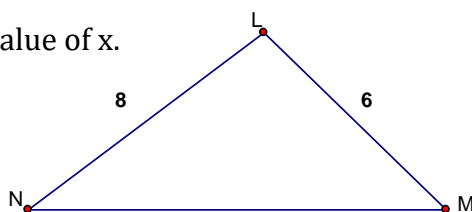
What is the length of \overline{AD} to the nearest tenth of a centimeter?



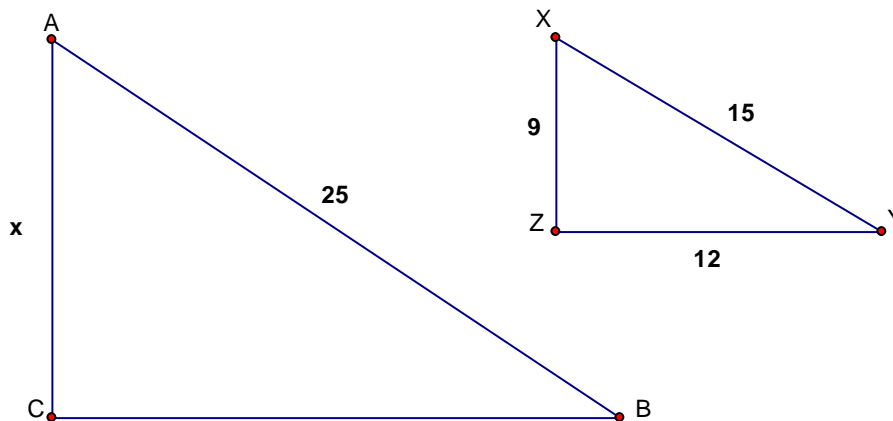
Unit 1 Similarity Review

15. The side lengths of $\triangle ABC$ are 5, 6, and 9 and the sides of $\triangle XYZ$ are 15, 18, and 27 respectively. Are the two triangles similar and if so, which postulate or theorem can be used to prove the triangles similar?

16. If $\triangle LMN \sim \triangle FIG$, find the value of x.

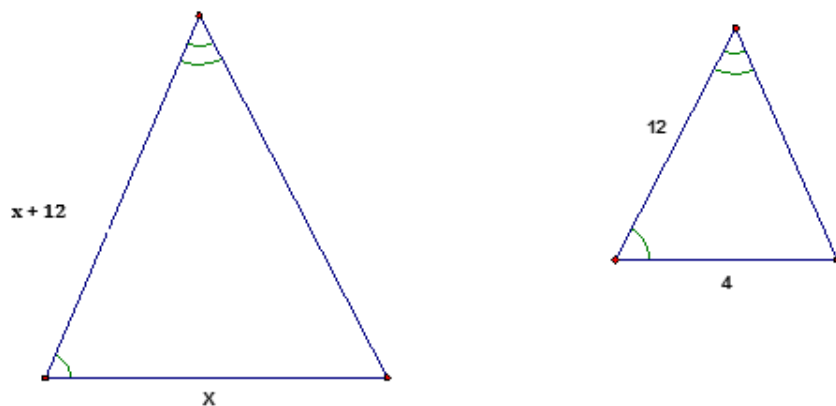


17. Solve for x: $\triangle ABC \sim \triangle XYZ$

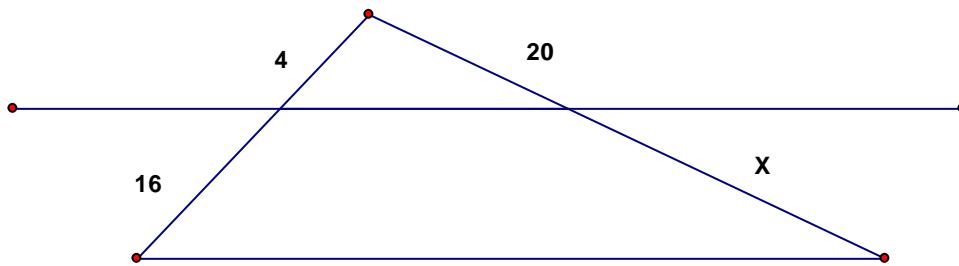


Unit 1 Similarity Review

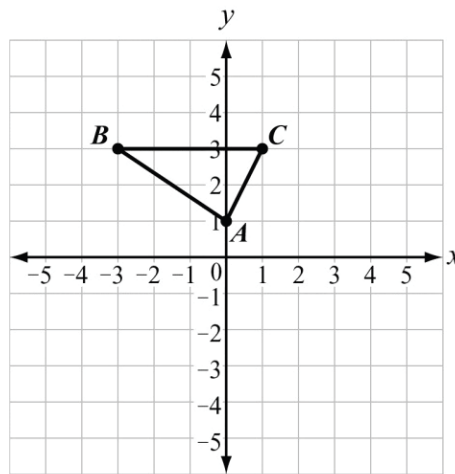
18. The following two triangles are similar. Solve for x.



19. A line parallel to a triangle's side splits into lengths of 16 and 4. The other side is split into lengths of 20 and x . What is the value of x that would prove that the parallel line divides the sides proportionally?



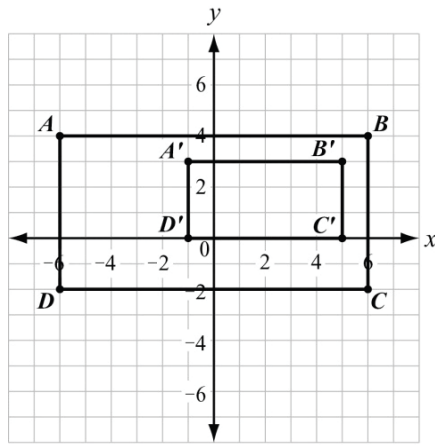
20. Dilate the triangle using a scale factor of 1.5 and a center of $(0, 0)$. Name the dilated triangle $A'B'C'$.



Unit 1 Similarity Review

21. Line segment CD is 5 inches long. If line segment CD is dilated to form line segment $C'D'$ with a scale factor of 0.6, what is the length of line segment $C'D'$?

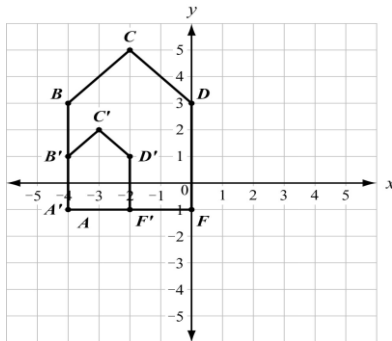
22. Figure $A'B'C'D'$ is a dilation of figure $ABCD$.



a) Determine the center of dilation.

b) Determine the scale factor of the dilation.

23. Figure $A'B'C'D'F'$ is a dilation of figure $ABCDF$ by a scale factor of $\frac{1}{2}$. The dilation is centered at $(-4, -1)$.



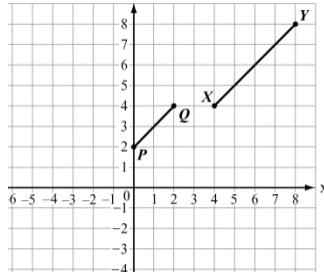
Which statement is true?

- a) $\frac{AB}{A'B'} = \frac{B'C'}{BC}$ b) $\frac{AB}{A'B'} = \frac{BC}{B'C'}$ c) $\frac{AB}{A'B'} = \frac{BC}{D'F'}$ d) $\frac{AB}{A'B'} = \frac{DF}{B'C'}$

24. Which transformation results in a figure that is similar to the original figure but has a greater area?

- a) a dilation of $\triangle QRS$ by a scale factor of 0.25
- b) a dilation of $\triangle QRS$ by a scale factor of 0.5
- c) a dilation of $\triangle QRS$ by a scale factor of 1
- d) a dilation of $\triangle QRS$ by a scale factor of 2

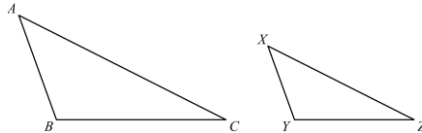
25. In the coordinate plane, segment PQ is the result of a dilation of segment XY by a scale factor of $\frac{1}{2}$.



Which point is the center of dilation?

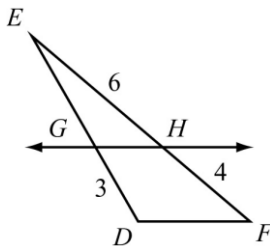
- a) (-4, 0)
- b) (0, -4)
- c) (0, 4)
- d) (4, 0)

26. In the triangles shown, $\triangle ABC$ is dilated by a factor of $\frac{2}{3}$ to form $\triangle XYZ$. Given that $m\angle A = 50^\circ$ and $m\angle B = 100^\circ$, what is the $m\angle Z$?



- a) 15°
- b) 25°
- c) 30°
- d) 50°

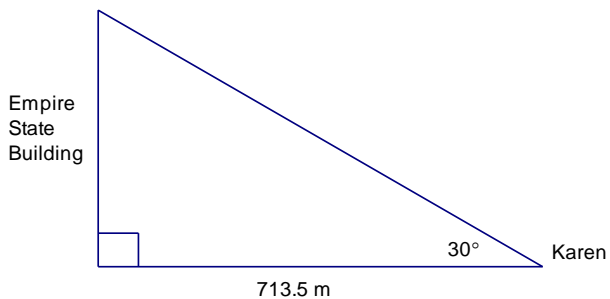
27. In the triangle shown $\overline{GH} \parallel \overline{DF}$.



What is the length of \overline{GE}

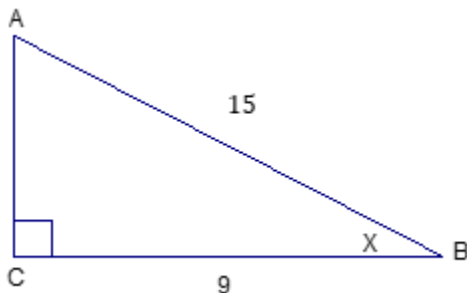
- a) 2.0
- b) 4.5
- c) 7.5
- d) 8.0

1. Karen is standing on a street in New York City looking at the top of the Empire State Building with a 30° angle of elevation. She is 713.5 meters from the Empire State Building.

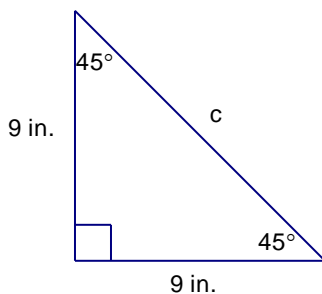


How tall is the Empire State Building? (round to the tenths place)

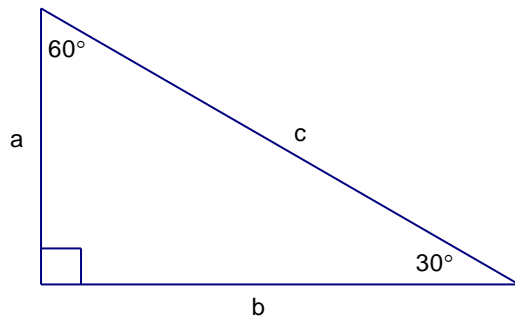
2. A right triangle (shown below) has a hypotenuse with a length of 15 inches and a leg with a length of 9 inches. Find the measure of angle B (round to the tenths place).



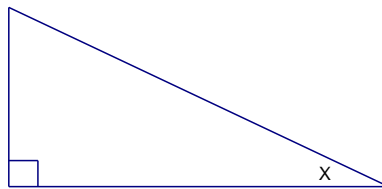
3. What is the $\cos B$?
4. What is the $\sin B$?
5. What is the $\tan A$?
7. The legs of the isosceles triangle each measure 9 inches. Find the length of the hypotenuse.



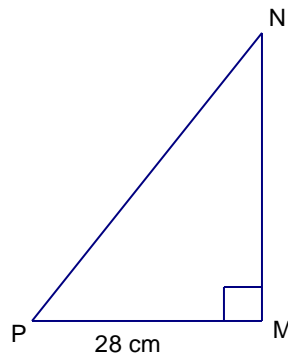
8. In the following triangle, $a = 5\sqrt{3}$ what is the value of b ?



9. In the following figure, if $\tan x = \frac{6}{8}$, what are $\sin x$ and $\cos x$



10. In the following figure $\cos P = 0.5$, what is the length of \overline{PN} ?



11. In the following diagram, $m\angle B = 56^\circ$ and $AB = 21$ feet. Write an equation that can be used to find the value of x ?

