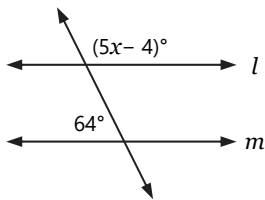


LESSON 89 Midterm Exam Practice Test

This is a practice test for your midterm exam. It is usually a good practice to take a practice test just like a real exam. Read the directions in Lesson 90. When you are ready, begin the test.

- Select all statements that are true.
 - A line has two endpoints.
 - Any four points are coplanar.
 - Parallel lines never intersect.
 - Every angle has a complement.
 - All isosceles triangles are equilateral.
 - A right triangle has two acute angles.

- What value of x makes lines l and m parallel?



- If $x + y = 8$ and $x = 5$, then $5 + y = 8$.

Which property justifies this statement?

- Addition Property of Equality
 - Reflexive Property of Equality
 - Transitive Property of Equality
 - Substitution Property of Equality
- What is the measure of one interior angle in a regular pentagon?

- $\triangle ABC$ is reflected across the x -axis and then dilated about the origin by a scale factor of 2 to create $\triangle DEF$. Which statement is true? Select all that apply.

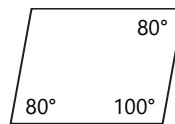
- $\triangle ABC \cong \triangle DEF$
- $\triangle ABC \sim \triangle DEF$
- $AB = 2DE$
- $\angle C \cong \angle F$

- \overrightarrow{BP} is the bisector of $\angle ABC$. What is the measure of $\angle ABC$ if $m\angle ABP = (3x + 7)^\circ$ and $m\angle PBC = (5x - 9)^\circ$?

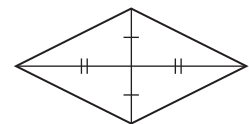
- Point $P(3, -4)$ is translated by the rule $(x, y) \rightarrow (x - 1, y + 5)$ and then reflected across the line $y = x$. What is the final image of P ?

- Which quadrilateral is not a parallelogram?

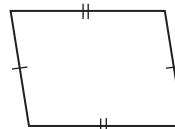
A)



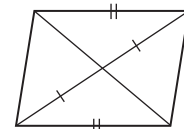
B)



C)



D)



9. Give reasons for Steps 2 and 4 to complete the proof.

Given: $AC = BD$

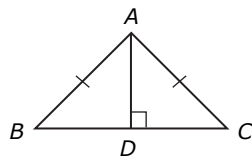
Prove: $AB = CD$



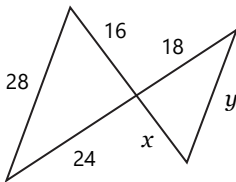
STATEMENTS	REASONS
1. $AC = BD$	1. Given
2. $AC = AB + BC$ $BD = BC + CD$	2.
3. $AB + BC = BC + CD$	3. Substitution property
4. $AB = CD$	4.

10. Which congruence criteria can be used most directly to prove $\triangle ABD \cong \triangle ACD$?

- A) SSS
B) SAS
C) ASA
D) HL

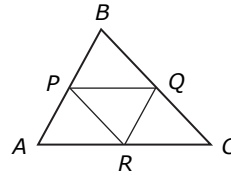


11. Find the values of x and y that make the triangles similar.

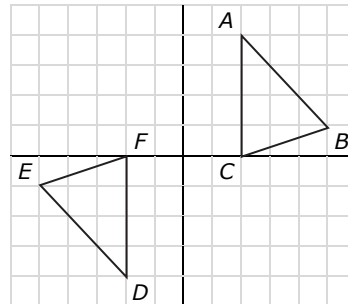


12. A triangle has sides of lengths 5 and 9. How long can the third side be? Write an inequality that describes the possible lengths of the third side.

13. $\triangle PQR$ is formed by connecting the midpoints of the sides of $\triangle ABC$. What is the relationship between the perimeter of $\triangle ABC$ and the perimeter of $\triangle PQR$?

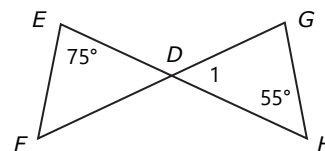


14. Which transformation(s) map $\triangle ABC$ onto $\triangle DEF$? Select all that apply.



- A) a reflection over the y -axis followed by a translation of 4 units down
B) a reflection over the x -axis followed by a reflection over the y -axis
C) a counterclockwise rotation of 180° about the origin
D) a clockwise rotation of 180° about the origin

15. In the diagram, $\triangle DEF \cong \triangle DGH$. What is the measure of $\angle 1$?



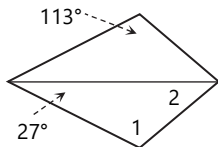
16. If $2x + 1 \neq 7$, then $x \neq 3$.

Order the steps to prove this statement using indirect proof.

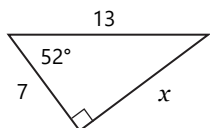
- A) Therefore, our assumption is wrong and $x \neq 3$.
 B) Then $2x + 1 = 2(3) + 1 = 7$.
 C) Assume that $x = 3$.
 D) This contradicts the given statement that $2x + 1 \neq 7$.

17. An isosceles triangle has base angles measuring $2x^\circ$ and $(5x - 45)^\circ$. What is the measure of the vertex angle of the triangle?

18. Find the measures of $\angle 1$ and $\angle 2$ if the quadrilateral is a kite.

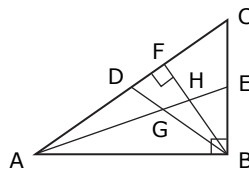


19. Which equation cannot be used to find the value of x ?



- A) $\sin 52^\circ = \frac{x}{13}$ B) $\tan 52^\circ = \frac{x}{7}$
 C) $\cos 38^\circ = \frac{13}{x}$ D) $\tan 38^\circ = \frac{7}{x}$

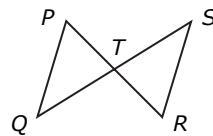
20. D and E are midpoints of sides of $\triangle ABC$. Name all altitudes and the orthocenter of $\triangle ABC$.



21. Give reasons for Steps 2 through 4 to complete the proof.

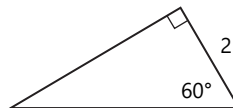
Given: T bisects \overline{PR} & \overline{QS} .

Prove: $\angle P \cong \angle R$



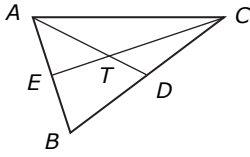
STATEMENTS	REASONS
1. T bisects \overline{PR} & \overline{QS} .	1. Given
2. $\overline{PT} \cong \overline{RT}$, $\overline{QT} \cong \overline{ST}$	2.
3. $\angle PTQ \cong \angle RTS$	3.
4. $\triangle PQT \cong \triangle RST$	4.
5. $\angle P \cong \angle R$	5. CPCTC

22. Which triangle is similar to this triangle? Select all that apply.

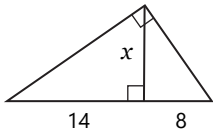


- A) a triangle with one angle 60°
 B) a triangle with sides 1, $\sqrt{3}$, and 2
 C) a right triangle with one angle 30°
 D) a right triangle with hypotenuse 4

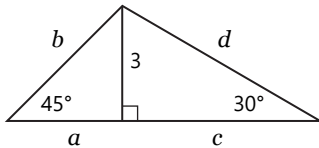
23. In $\triangle ABC$, \overline{AD} and \overline{CE} are medians. Find AD and AT if $TD = 6$.



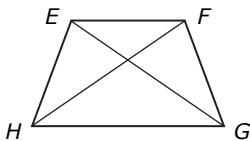
24. Find the value of x in simplest radical form.



25. Find the values of the variables in simplest radical form.



26. Quadrilateral $EFGH$ is an isosceles trapezoid with bases \overline{EF} and \overline{HG} . Which statement is not true?



- A) $\overline{EF} \parallel \overline{HG}$ B) $\overline{EH} \cong \overline{FG}$
 C) $\overline{EG} \perp \overline{FH}$ D) $\overline{EG} \cong \overline{FH}$

27. $\triangle ABC$ is a right triangle with $m\angle A = 90^\circ$, $m\angle B = 2x^\circ$, and $m\angle C = (3x - 10)^\circ$. Which statement is true? Select all that apply.

- A) $AC > AB$
 B) $AB + AC < BC$
 C) The shortest side is \overline{AB} .
 D) The longest side is \overline{BC} .
 E) The smallest angle is $\angle B$.

28. Two consecutive angles in a parallelogram measure x° and $5x^\circ$. What are the measures of the four angles of the parallelogram?

29. Eli is 1.6 meters tall and casts a shadow that is 2.4 meters long. A tree next to him casts a shadow 12 meters long. How tall is the tree?

30. A lighthouse is 80 ft above the surface of the water. The angle of depression from the top of a lighthouse to a ship is 35° . How far is the ship from the lighthouse?

STOP

This is the end of the test.
 Review your answers before grading.