

**Warm Up 50**

1. means
2. legs
3. 8, 10
4. extremes

**Lesson Practice 50**

- a.  $\triangle DEF \sim \triangle DGE \sim \triangle FGE$
- b.  $x = 14.4, y = 24$
- c. 6.6
- d.  $4\sqrt{2}$
- e.  $x = 1.8$
- f.  $a = 1.9; b = 11.1$
- g. the brace is 3.2 ft

**Practice 50**

1. rectangular pyramid
2.  $38^\circ$
3.  $(-1, -1)$
4. 10.4 inches
5.  $(4, 0)$
6. Sample: The geometric mean is the value that is between two numbers so that the mean squared equals the product of the two numbers; the mean is simply their average.
7. Proof: Assume  $XA$  is an altitude. Then  $XA$  is perpendicular to  $YZ$ . Since perpendicular segments form four right angles, then  $m\angle 1 = m\angle 2$ , but it is given that  $m\angle 1 \neq m\angle 2$ , so we have a contradiction. Thus,  $XA$  is not an altitude of  $\triangle XYZ$ .
8.  $\sqrt{xy}$

9.

Statements	Reasons
1. $m\angle ADB = 90^\circ$ , $m\angle BDC = 90^\circ$ , $m\angle ABC = 90^\circ$ , $AD = DB$	1. Given
2. $m\angle DAB + m\angle ABD = 90^\circ$	2. Acute angles in a right triangle are complementary
3. $m\angle ABD + m\angle DBC = 90^\circ$	3. Angle Addition Postulate
4. $m\angle DAB + m\angle ABD = m\angle ABD + m\angle DBC$	4. Substitution Property of Equality
5. $m\angle DAB + m\angle ABD - m\angle ABD = m\angle ABD + m\angle DBC - m\angle ABD$	5. Subtraction Property of Equality
6. $m\angle DAB = m\angle DBC$	6. Simplify
7. $\angle DAB \cong \angle DBC$	7. Definition of congruent angles
8. $\angle ADB \cong \angle BDC$	8. All right angles are congruent
9. $\triangle ABD \cong \triangle BCD$	9. ASA Theorem

10.  $\angle T \cong \angle D$ ,  $\angle V \cong \angle F$ ,  $\triangle TUV \sim \triangle DEF$  by AA~

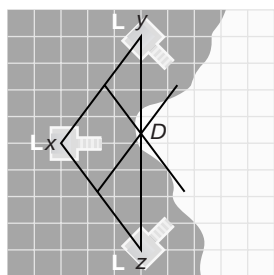
11. 32

12. It is necessary to know only two sides, one on each triangle.

13.  $100^\circ$ 

14. (5, 2)

15.



16. Since  $13 + 31 = 44$ , and this is less than the largest side length given, these side lengths cannot form a triangle.
17. 3.21 in.
18. C
19.  $z = \{4, 6\}$
20. 13 feet
21. Only when the two lines are parallel.

22. Answers will vary. Any value for  $x$  that is between  $0^\circ$  and  $52^\circ$  is a valid answer. This is due to the fact that the angle at  $J$  is  $52^\circ$  and the opposite side to this third angle is longer than the corresponding third side of the other triangle. This means that the angle at  $C$  must be smaller than  $52^\circ$ .
23.  $(-5, 10), (-5, 0), (5, 0), (5, 10)$
24. C
25. 127.3 feet
26.  $36^\circ$
27. No, because  $24 - 48 + 22 = -2$ , so it does not hold because of Euler's Formula.
28.  $x = 4.6$
29.  $x = 5$
30. D