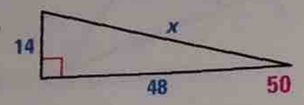
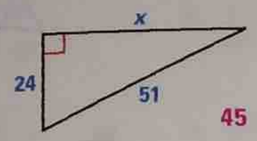
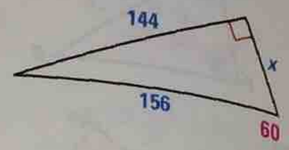
# Chapter 7

**7.1 Find the unknown side length of the right triangle using the Pythagorean Theorem or a Pythagorean triple.**

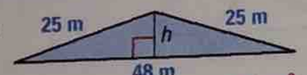
1. 


2. 

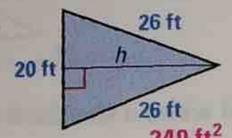
45

3. 

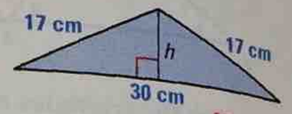

**7.1 Find the area of the isosceles triangle.**

4. 

168 m²

5. 

240 ft²

6. 

120 cm²

**7.2 Tell whether the given side lengths of a triangle can represent a right triangle.**

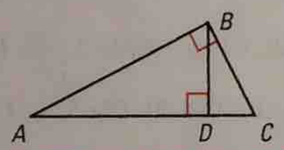
7. 24, 32, and 40 right triangle
8. 21, 72, and 75 right triangle
9. 11, 25, and 27 not a right triangle
10. 7, 11, and 13 not a right triangle
11. 17, 19, and $5\sqrt{26}$ right triangle
12. 9, 10, and $\sqrt{181}$ right triangle

**7.2 Decide if the segment lengths form a triangle. If so, would the triangle be *acute*, *right*, or *obtuse*?**

13. 14, 21, and 25 triangle; acute
14. 32, 60, and 68 triangle; right
15. 11, 19, and 32 not a triangle
16. 3, 9, and $3\sqrt{11}$ triangle; obtuse
17. 12, 15, and $3\sqrt{40}$ triangle; acute
18. $4\sqrt{21}$, 25, and 31 triangle; right

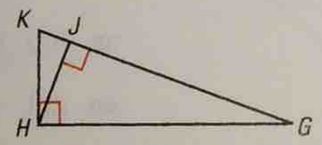
**7.3 Write a similarity statement for the three similar triangles in the diagram. Then complete the proportion.**

19. $\frac{AB}{AD} = \frac{BC}{?}$



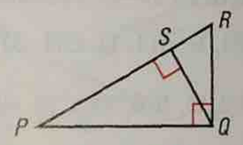
$\triangle ADB \sim \triangle BDC \sim \triangle ABC$; BD

20. $\frac{KJ}{HJ} = \frac{?}{JG}$



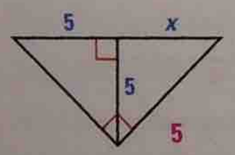
$\triangle GHK \sim \triangle GJH \sim \triangle HJK$; JH

21. $\frac{SR}{RQ} = \frac{RQ}{?}$

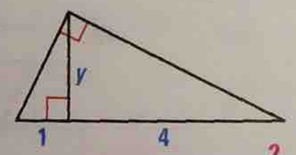


$\triangle PSQ \sim \triangle QSR \sim \triangle PQR$; RP

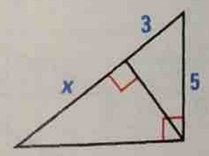
**7.3 Find the value of the variable. Round decimal answers to the nearest tenth.**

22. 

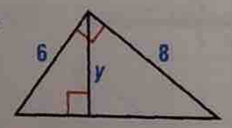
5

23. 

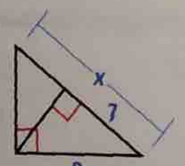
2

24. 

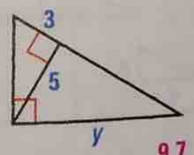
5.3

25. 

4.8

26. 

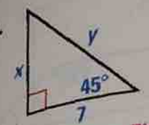
11.6

27. 

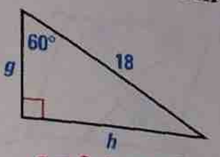
9.7



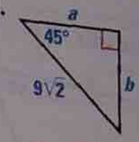
**7.4 Find the value of each variable. Write your answers in simplest radical form.**

28. 

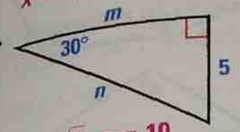
$x = 7, y = 7\sqrt{2}$

29. 

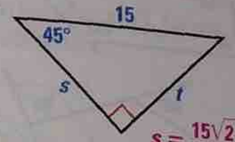
$g = 9, h = 9\sqrt{3}$

30. 

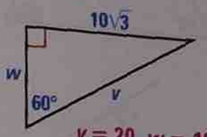
$a = 9, b = 9$

31. 

$m = 5\sqrt{3}, n = 10$

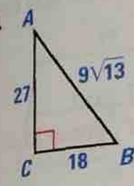
32. 

$s = \frac{15\sqrt{2}}{2}, t = \frac{15\sqrt{2}}{2}$

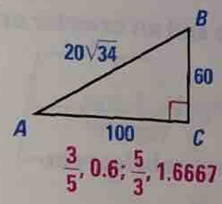
33. 

$v = 20, w = 10$

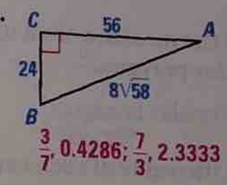
**7.5 Find tan *A* and tan *B*. Write each answer as a fraction and as a decimal rounded to four places.**

34. 

$\frac{2}{3}$, 0.6667; $\frac{3}{2}$, 1.5

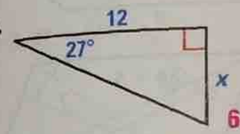
35. 

$\frac{3}{5}$, 0.6; $\frac{5}{3}$, 1.6667

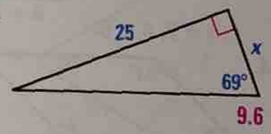
36. 

$\frac{3}{7}$, 0.4286; $\frac{7}{3}$, 2.3333

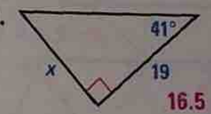
**7.5 Use a tangent ratio to find the value of *x*. Round to the nearest tenth. Check your solution using the tangent of the other acute angle.**

37. 

6.1

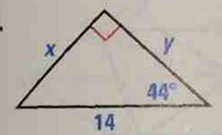
38. 

9.6

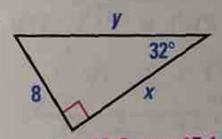
39. 

16.5

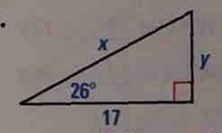
**7.6 Use a sine or cosine ratio to find the value of each variable. Round decimals to the nearest tenth.**

40. 

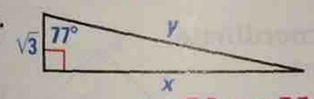
$x = 9.7, y = 10.1$

41. 

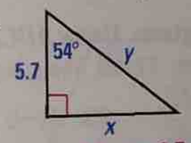
$x = 12.8, y = 15.1$

42. 

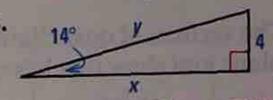
$x = 18.9, y = 8.3$

43. 

$x = 7.5, y = 7.7$

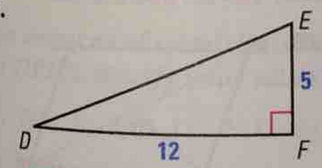
44. 

$x = 7.8, y = 9.7$

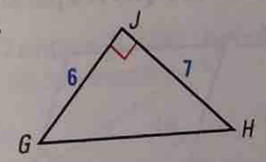
45. 

$x = 16.0, y = 16.5$

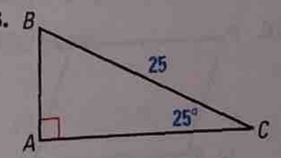
**7.7 Solve the right triangle. Round decimal answers to the nearest tenth.**

46. 

$DE = 13, m\angle D = 22.6°, m\angle E = 67.4°$

47. 

$GH = 9.2, m\angle G = 49.4°, m\angle H = 40.6°$

48. 

$AB = 10.6, AC = 22.7, m\angle B = 65°$