Geometry Name:_____

Chapter 7 Review Part A

1. The two sides of a right triangle that make the right angle are called the _____. The side opposite of the right angle is called the _____.

2. The hypotenuse is always the _____ side of a right triangle.

3. Given two sides of a right triangle, the _____ can be used to solve for the third.

4. The formula for the Pythagorean Theorem is _____ or _____.

5. A Pythagorean Triple is a set of _____ numbers that satisfy the Pythagorean Theorem.

6. The two most common Pythagorean Triples are ____ , ____ , ____ and ____ , ____ , ____ .

7. The length of a missing side of a right triangle can always be determined using the Pythagorean Theorem, but sometimes it can be much easier to solve by applying a _____.

8. If $a^2 + b^2$ is _____ to c^2, then the triangle is a right triangle.

9. If $a^2 + b^2$ is _____ to c^2, then the triangle is an acute triangle.

10. If $a^2 + b^2$ is _____ to c^2, then the triangle is an obtuse triangle.

11. a and b are always the _____ lengths and c is always the _____.

12. For a 45°-45°-90° triangle, the leg times _____ is equal to the hypotenuse.

13. For a 30°-60°-90° triangle, the short leg times _____ is equal to the long leg.

14. For a 30°-60°-90° triangle, the short leg times _____ is equal to the hypotenuse.

15. The short leg is opposite of the _____ angle and the long leg is opposite of the _____ angle.

16. Getting a fraction to NOT have a denominator that is a radical is called _____.

17. A regular polygon is both _____ and _____.

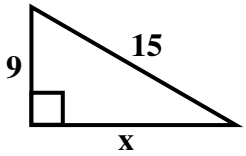
18. The height of a triangle can also be referred to as the _____.

19. A segment that joins two non-adjacent vertices of a polygon is called a _____.

20. The acronym used to remember trigonometric ratios is _____.

Find the missing length of the right triangle using Pythagorean Triples.

21.



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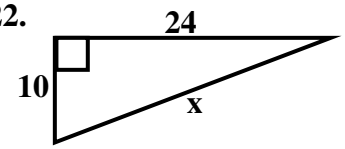

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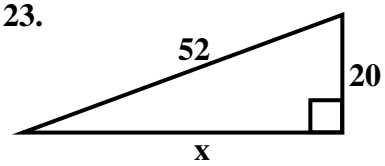
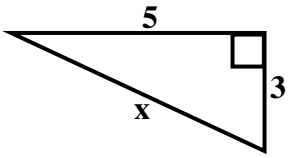


Find the missing length of the right triangle using the Pythagorean Theorem.

24.



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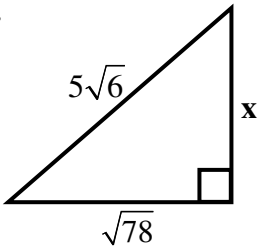

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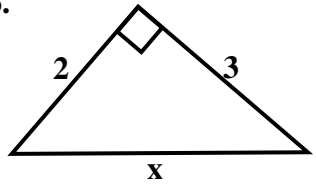
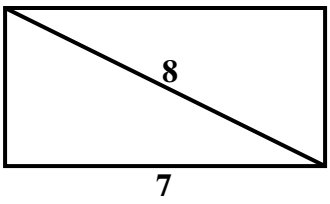
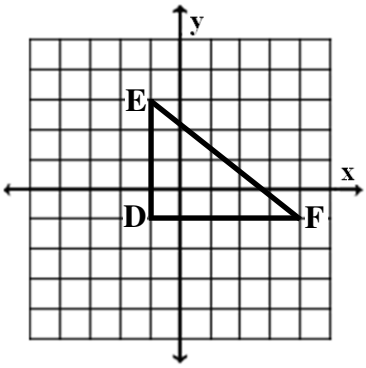


27. The hypotenuse of a right triangle is 6 meters and one leg is 4 meters. Find the length of the other leg.

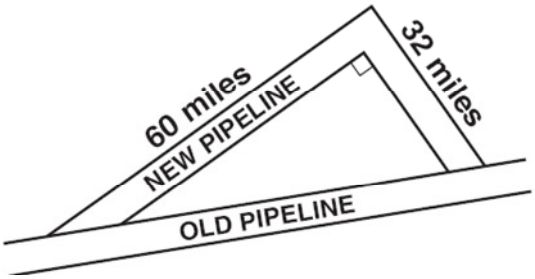
28. Find the height of the rectangle shown below.



29. Find the length of the hypotenuse of the triangle.



30. A new pipeline is being constructed to re-route Its oil flow around the exterior of a national wildlife preserve. The plan showing the old pipeline and the new route is shown below.



About how many extra miles will the oil flow once the new route is established?

Classify a triangle with the given side lengths as right, acute, or obtuse for problems. The side lengths are listed from smallest to largest.

31. $\sqrt{5}, 6, 7$

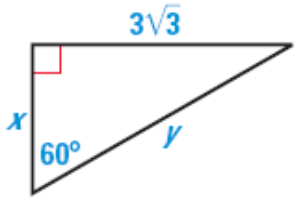
32. $3\sqrt{2}, \sqrt{31}, 7$

Find the value of x.

33. $x\sqrt{3}, 3x, 12;$ acute

Find the value of the variable(s).

34.



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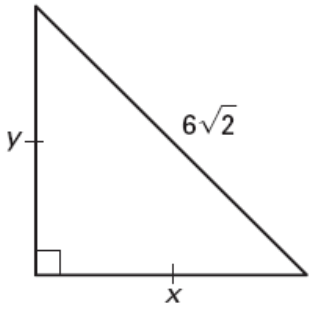

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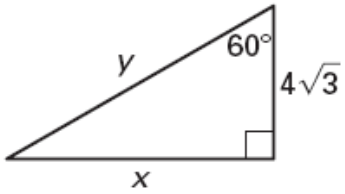

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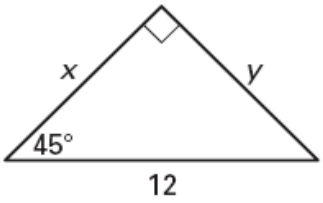

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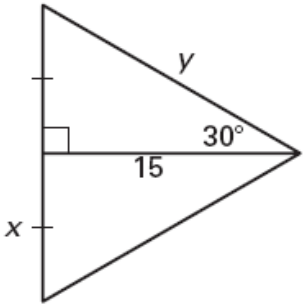

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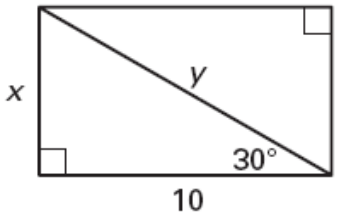
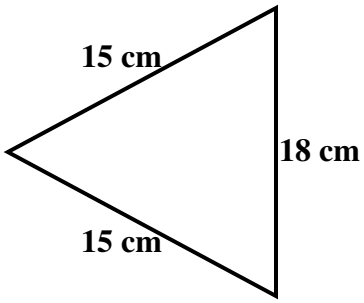


40. Find the area of the triangle.



41. The side length of an equilateral triangle is 12 centimeters. Find the area of the triangle.

42. The altitude (height) of an equilateral triangle is 18 inches. Find the length of a side.

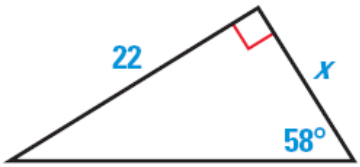
43. The perimeter of a square is 16 feet. Find the length of a diagonal.

44. The area of a square is 49 square inches. Find the length of its diagonal.

45. The diagonal of a square is 8 yards. Find its area.

Find the value of the variable.

46.



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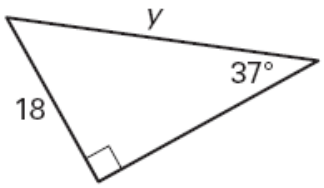

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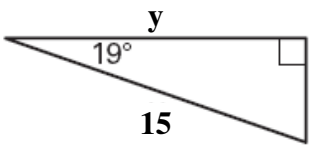
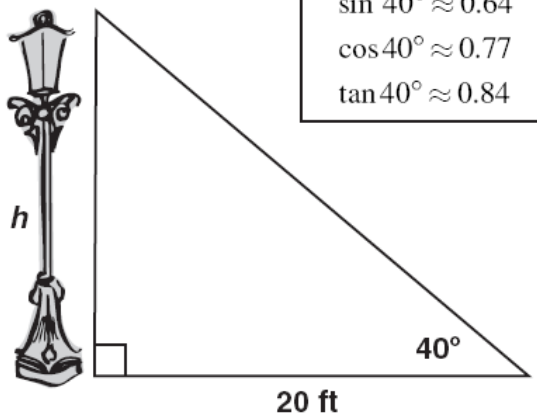
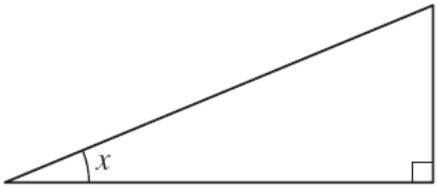


49. **Approximately how many feet tall is the streetlight?**

$\sin 40° \approx 0.64$
$\cos 40° \approx 0.77$
$\tan 40° \approx 0.84$

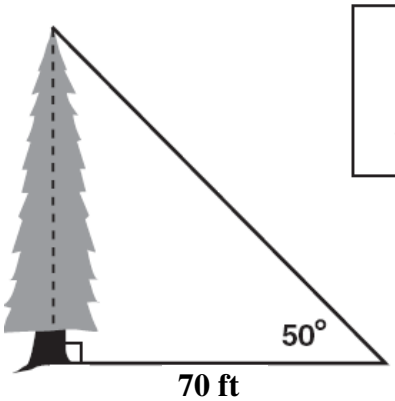


50. **In the figure below, if $\sin x = \frac{5}{13}$, what are $\cos x$ and $\tan x$?**

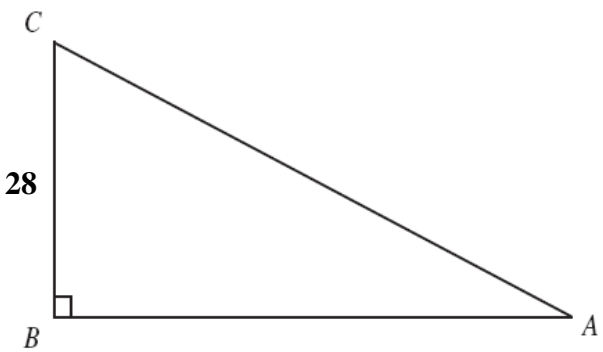


51. **What is the approximate height, in feet, of the tree in the figure below?**

$\sin 50° \approx 0.766$
$\cos 50° \approx 0.643$
$\tan 50° \approx 1.192$



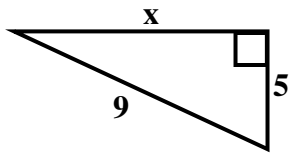
52. **In the figure below, $\sin A = 0.8$. What is the length of $\overline{AC}$?**



Error Analysis
Directions: State the mistake made in Part A and solve the problem correctly in Part B.

WRONG

53 A) Find the value of x.



$5^2 + 9^2 = x^2$

$25 + 81 = x^2$

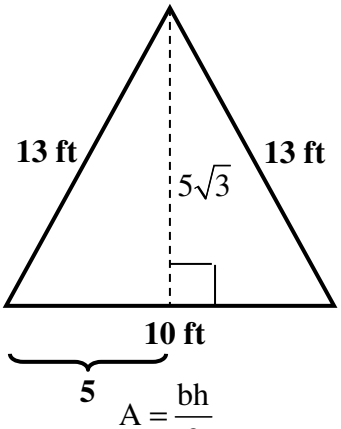
$106 = x^2$

106
2 53

$\sqrt{106} = \sqrt{x^2}$

$\boxed{x = \sqrt{106}}$

54 A) Find the area of the triangle.



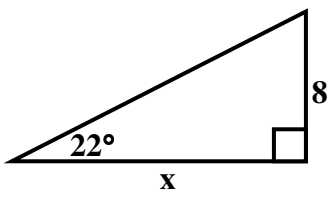
$A = \frac{bh}{2}$

$A = \frac{(10)(5\sqrt{3})}{2}$

$A = (5)(5\sqrt{3})$

$\boxed{A = 25\sqrt{3}}$

55 A) Find the value of x.



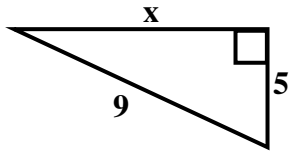
short leg • $\sqrt{3}$ = long leg

$8 \cdot \sqrt{3} = x$

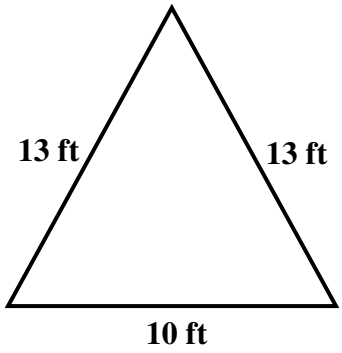
$\boxed{x = 8\sqrt{3}}$

RIGHT

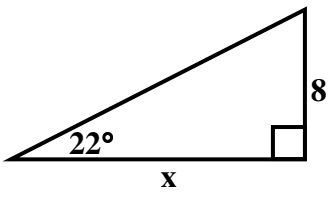
53 B) Find the value of x.



54 B) Find the area of the triangle.



55 B) Find the value of x.



Answer Key:

1) legs, hypotenuse **2)** longest **3)** Pythagorean Theorem **4)** $\text{leg}^2 + \text{leg}^2 = \text{hypotenuse}^2, a^2 + b^2 = c^2$

5) whole **6)** 3, 4, 5 and 5, 12, 13 **7)** Pythagorean Triples **8)** equal **9)** greater than **10)** less than

11) shortest, longest **12)** $\sqrt{2}$ **13)** $\sqrt{3}$ **14)** 2 **15)** $30°, 60°$ **16)** rationalizing the denominator

17) equilateral, equiangular **18)** altitude **19)** diagonal **20)** Soh Cah Toa **21)** $x = 12$

22) $x = 26$ **23)** $x = 48$ **24)** $x = \sqrt{34}$ **25)** $x = 6\sqrt{2}$ **26)** $x = \sqrt{13}$ **27)** $2\sqrt{5}$ **28)** $\sqrt{15}$

29) $\sqrt{41}$ **30)** 24 miles

31) Obtuse **32)** Right **33)** $x > 2\sqrt{3}$ **34)** $x = 3, y = 6$ **35)** $x = 6, y = 6$

36) $x = 12, y = 8\sqrt{3}$ **37)** $x = 6\sqrt{2}, y = 6\sqrt{2}$ **38)** $x = 5\sqrt{3}, y = 10\sqrt{3}$ **39)** $x = \frac{10\sqrt{3}}{3}, y = \frac{20\sqrt{3}}{3}$

40) $A = 108 \text{ cm}^2$ **41)** $36\sqrt{3}$ **42)** $12\sqrt{3}$ **43)** $4\sqrt{2}$ **44)** $7\sqrt{2}$ **45)** $A = 32 \text{ yd}^2$ **46)** $x = \frac{22}{\tan 58°}$

47) $y = \frac{18}{\sin 37°}$ **48)** $y = 15\cos 19°$ **49)** $h = 16.8$ ft **50)** $\cos x = \frac{12}{13}, \tan x = \frac{5}{12}$ **51)** 83.44 ft **52)** AC = 35

53 A) The hypotenuse was mistaken as a leg when applying the Pythagorean Theorem **53 B)** $2\sqrt{14}$

54 A) You can NOT divide an isosceles triangle into 30°-60°-90° triangles. **54 B)** $A = 60 \text{ ft}^2$

55 A) The triangle is NOT a 30°-60°-90° triangle. You have to use a trigonometric ratio. **55 B)** $y = \frac{8}{\tan 22°}$