Geometry A
Review for Quiz on 7.1 and 7.2

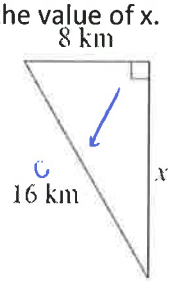
Name: Key
Date: _____ Period: _____

LEARNING TARGETS

- ✓ I can use Pythagorean Theorem to find side lengths in triangles.
- ✓ I can apply my knowledge of Pythagorean Theorem to solve real-world problems.
- ✓ I can apply my knowledge of Pythagorean Theorem to find areas of isosceles and right triangles.
- ✓ I can determine if three lengths form a triangle.
- ✓ I can use the converse of the Pythagorean Theorem to classify triangles as acute, obtuse, or right.

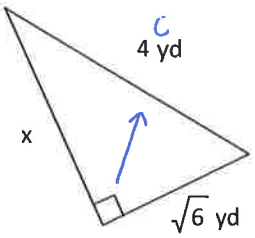
1. Find the value of x. Leave answer in simplest radical form.

a)



$x^2+8^2=16^2$
$x^2+64=256$
$x^2=192$
$x=\sqrt{192}$
$x=\sqrt{64}\sqrt{3}$
$x=8\sqrt{3}$

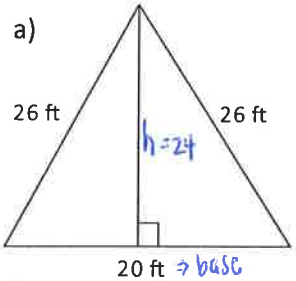
b)

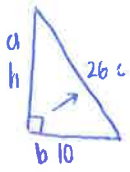


$x^2+(\sqrt{6})^2=4^2$
$x^2+6=16$
$x^2=10$
$x=\sqrt{10}$

2. Find the area of the triangle. Leave answer in simplest radical form.

a)

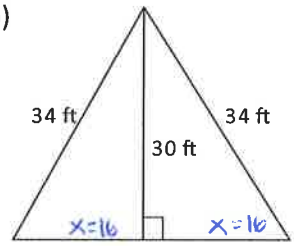


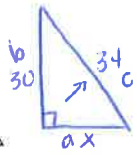


$h^2+10^2=26^2$
$h^2+100=676$
$h^2=576$
$h=\sqrt{576}$
$h=24$

$A=\frac{1}{2}(\text{base})(\text{height})$
$A=\frac{1}{2}(20)(24)$
$A=240\text{ ft}^2$

b)

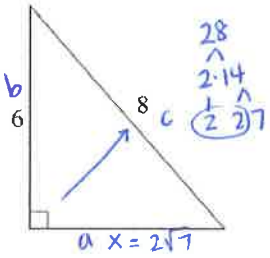




$x^2+30^2=34^2$
$x^2+900=1156$
$x^2=256$
$x=\sqrt{256}$
$x=16$

$h=30;\ b=32$
$A=\frac{1}{2}bh$
$=\frac{1}{2}(32)(30)$
$A=480\text{ ft}^2$

c)

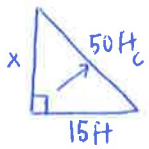


28
2·14
2 2 7

$x^2+6^2=8^2$
$x^2+36=64$
$x^2=28$
$x=\sqrt{28}$
$x=2\sqrt{7}$

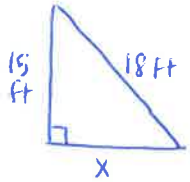
$A=\frac{1}{2}(2\sqrt{7})(6)$
$=\frac{1}{2}(12\sqrt{7})$
$A=6\sqrt{7}\text{ units}^2$

3. A 50-ft cable is stretched from the top of an antenna to an anchor point on the ground 15 ft from the base of the antenna. How tall is the antenna? Round to the nearest tenth.



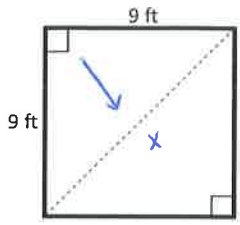
$x^2+15^2=50^2$
$x^2+225=2500$
$x^2=2275 \Rightarrow x=\sqrt{2275} \Rightarrow x\approx 47.7\text{ ft}$

4. How far from the base of a house do you need to place an 18 foot ladder so that it exactly reaches the top of a 15 foot wall? Round your answer to the nearest foot.



$x^2+15^2=18^2$
$x^2+225=324$
$x^2=99$
$x=\sqrt{99}$
$x\approx 10\text{ feet}$

5. Find the length of the diagonal in the square below. Round answer to nearest hundredth.



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

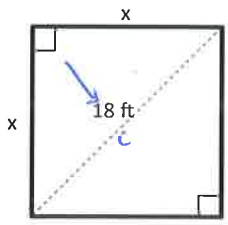
$81+81=x^2$

$162=x^2$

$x=\sqrt{162}$

$x \approx 12.73$

6. Find the value of x in the square below. Round answer to the nearest hundredth.



$x^2+x^2=18^2$

$\frac{2x^2}{2}=\frac{324}{2}$

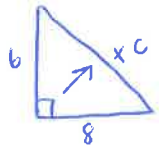
$x^2=162$

$x=\sqrt{162}$

$x \approx 12.73$

7. Two side lengths of a right triangle are 6 and 8.

a) Assuming the missing side is the hypotenuse, what is the length of the hypotenuse, to the nearest tenth?



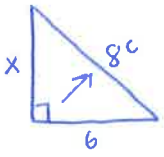
$6^2+8^2=x^2$

$36+64=x^2$

$100=x^2$

$x=\sqrt{100} \Rightarrow x=10$

b) Assuming the missing side is a leg, what is the length of the missing leg, to the nearest tenth?



$x^2+6^2=8^2$

$x^2+36=64$

$x^2=28$

$x=\sqrt{28} \Rightarrow x \approx 5.3$

8. Three segment lengths are given below. Decide whether the segments can form a triangle. If so, classify the triangle as acute, right, or obtuse.

a) a 5, b 8, c 12

$5+8>12$ ✓

$8+12>5$ ✓

$12+5>8$ ✓

$c^2=a^2+b^2$

$12^2=5^2+8^2$

$144=25+64$

$144>89$

$c^2>a^2+b^2$

obtuse Δ

b) 5, 6, 12

$5+6>12$ ✗

not a Δ

c) a 8, b 9, c 12

$8+9>12$ ✓

$9+12>8$ ✓

$8+12>9$ ✓

$c^2=a^2+b^2$

$12^2=8^2+9^2$

$144=64+81$

$144<145$

$c^2<a^2+b^2$

acute Δ

9. Two sides of a triangle are 18 in (a) and 30 in (b). Describe the possible values for the third side.

$a+b>c$

$18+30>c$

$48>c$

$b+c>a$

$30+c>18$

$c>-12$

↑ negative side length

$a+c>b$

$18+c>30$

$c>12$

$\Rightarrow 12<c<48$

Answers:

1 a) $8\sqrt{3}$ km b) $\sqrt{10}$ yd 2. a) 240 ft^2 b) 480 ft^2 c) $6\sqrt{7}$ sq. units 3. 47.7 ft 4. 10 ft

5. 12.7 ft 6. 12.7 ft 7. a) 10 b) 5.3

8. a) triangle; obtuse b) not a triangle c) triangle; acute 9. $12 < x < 48$