Name Answers Date

Chapter 8 Review - Part 1

8.1 – Simplifying Square Roots

Simplify the following:

1) $\sqrt{28} = 2\sqrt{7}$

2) $6\sqrt{125} = 30\sqrt{5}$

3) $-3\sqrt{72}+6\sqrt{52}-7\sqrt{128}$

$= -18\sqrt{2} + 12\sqrt{13} - 56\sqrt{2}$

$= -74\sqrt{2} + 12\sqrt{13}$

4) $(3\sqrt{5})^2 = 45$

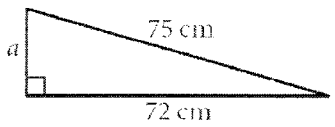
5) $\frac{3}{\sqrt{3}}\frac{\sqrt{3}}{\sqrt{3}} = \sqrt{3}$

6) $\frac{1}{5\sqrt{2}}\frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{10}$

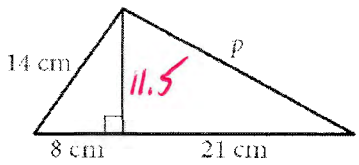
8.2 & 8.3 – The Pythagorean Theorem and Its Converse

Find the missing side. Round to the nearest tenth place.

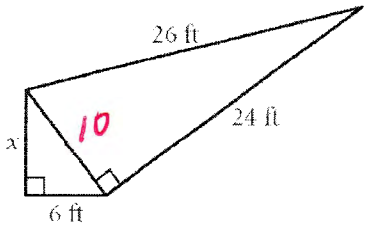
7) $a =$ 21 cm



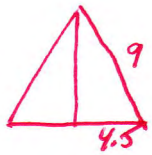
8) $p \approx$ 23.9 cm



9) $x =$ 8ft



10) Find the height of an equilateral triangular with side length 9 cm.



$4.5\sqrt{3} \approx 7.8$ cm

11) List the Pythagorean triples (Primitives):

3-4-5
5-12-13
7-24-25
8-15-17

Determine whether or not a triangle with the given side lengths is a right triangle.

12) 76, 120, 98

$76^2 + 98^2 \stackrel{?}{=} 120^2$

$15380 \neq 14400$

No

13) 221, 204, 85

$85^2 + 204^2 \stackrel{?}{=} 221^2$

$48,841 = 48,841$

Yes

14) $\sqrt{14}, \sqrt{30}, 4$

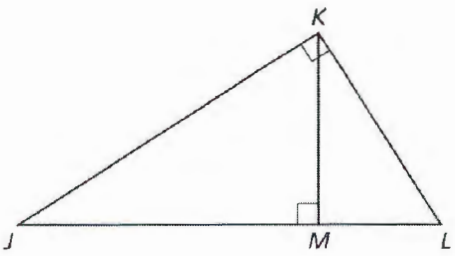
$(\sqrt{14})^2 + 4^2 \stackrel{?}{=} (\sqrt{30})^2$

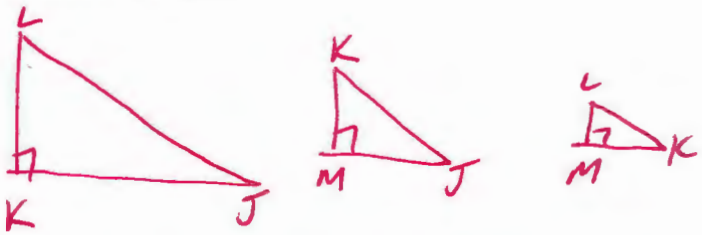
$30 = 30$

Yes

8.4 – Using Similar Right Triangles

15) Write a similarity statement for the three similar triangles:

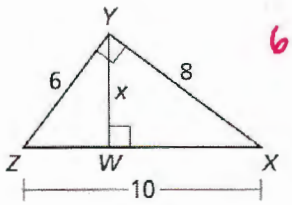


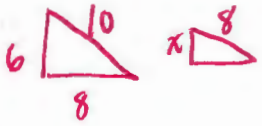


$\triangle LKJ \sim \triangle KMJ \sim \triangle LMK$

Find the value of x.

16)

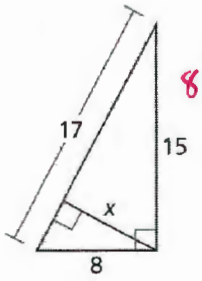




$\frac{6}{x} = \frac{10}{8}$

$x = 4.8$

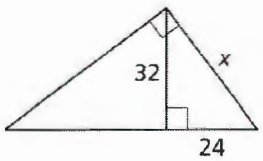
17)



$\frac{8}{x} = \frac{17}{15}$

$x \approx 7.1$

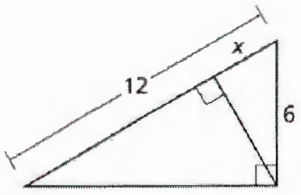
18)



$32^2 + 24^2 = x^2$

$40 = x$

19)



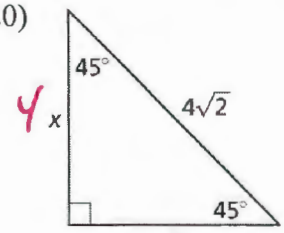
$\frac{12}{6} = \frac{6}{x}$

$x = 3$

8.5 – Special Right Triangles

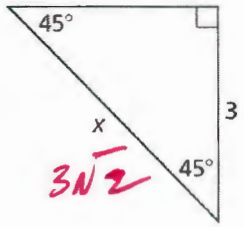
Find the value of the variables. Write your answers in simplest radical form.

20)



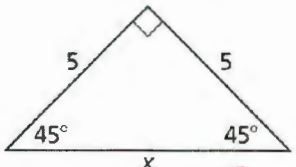
4 x 4

21)



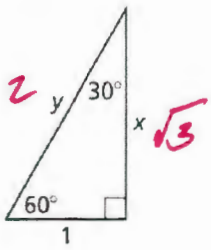
3√2

22)



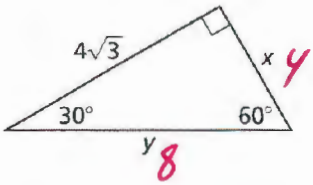
5√2

23)



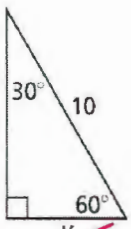
2 √3

24)



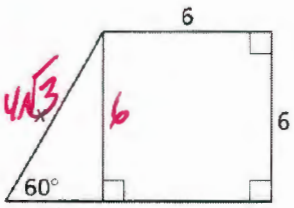
4 8

25)



5√3 5

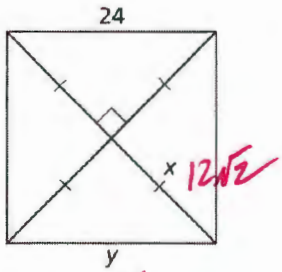
26)



2√3

$\frac{6}{\sqrt{3}} \frac{\sqrt{3}}{\sqrt{3}}$

27)

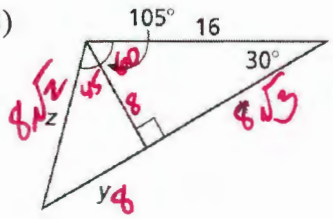


12√2

24

$\frac{24}{\sqrt{2}} \frac{\sqrt{2}}{\sqrt{2}}$

28)



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8.6 – The Distance Formula

29) What is the distance formula? Distance = $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

Find the distance between the points.

30) (5, 6) and (1, 3)

$d = \sqrt{(1-5)^2+(3-6)^2}$

$= \sqrt{(-4)^2+(-3)^2}$

$= \sqrt{16+9}$

$= \sqrt{25}$

$= 5$

31) (3, 5) and (4, -1)

$d = \sqrt{(4-3)^2+(-1-5)^2}$

$= \sqrt{1^2+(-6)^2}$

$= \sqrt{1+36}$

$= \sqrt{37}$

32) Determine whether a triangle with the following vertices is scalene, isosceles, or equilateral.

(3, 2) (-10, 4), (-5, -8)

$d_1 = \sqrt{(-13)^2 + 2^2}$

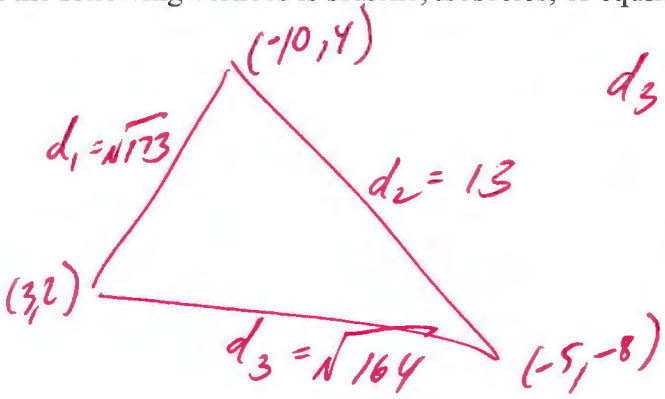
$= \sqrt{169 + 4}$

$= \sqrt{173}$

$d_2 = \sqrt{(-5)^2 + 12^2}$

$= \sqrt{25 + 144}$

$= \sqrt{169} = 13$



$d_3 = \sqrt{(-10)^2 + (-8)^2}$

$= \sqrt{100 + 64}$

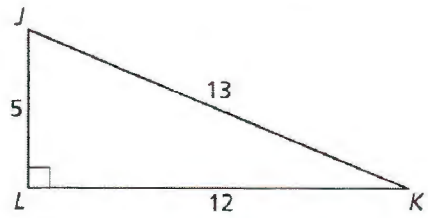
$= \sqrt{164}$

Scalene

8.7/8.8 – Using Trigonometric Functions

Find sin *J*, sin *K*, cos *J*, and cos *K*. Write each answer as a fraction and as a decimal rounded to four places.

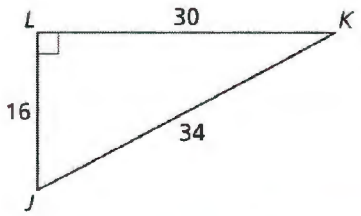
33)



$\sin J = \frac{12}{13} = .9231$ $\sin K = \frac{5}{13} = .3846$

$\cos J = \frac{5}{13} = .3846$ $\cos K = \frac{12}{13} = .9231$

34)

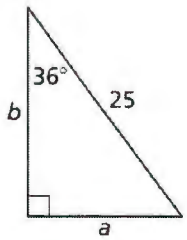


$\sin J = \frac{15}{17} = .8824$ $\sin K = \frac{8}{17} = .4706$

$\cos J = \frac{8}{17} = .4706$ $\cos K = \frac{15}{17} = .8824$

Find the value of the missing sides. Round to the nearest tenth.

35)



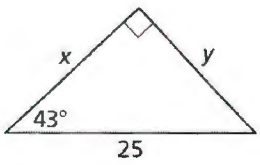
$\sin 36° = \frac{a}{25}$

$a \approx 14.7$

$\cos 36° = \frac{b}{25}$

$b \approx 20.2$

36)



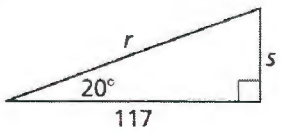
$\cos 45° = \frac{x}{25}$

$x \approx 18.3$

$\sin 45° = \frac{y}{25}$

$y \approx 17.0$

37)



$\cos 20° = \frac{117}{r}$

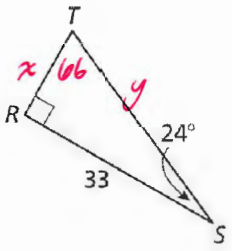
$r \approx 124.5$

$\tan 20° = \frac{s}{117}$

$s \approx 42.6$

Find the value of all the sides and angles.

38)



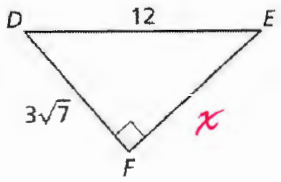
$\tan 24° = \frac{x}{33}$

$x \approx 14.7$

$\cos 24° = \frac{33}{y}$

$y \approx 36.1$

39)



$\cos D = \frac{3\sqrt{7}}{12}$

$m\angle D \approx 49°$

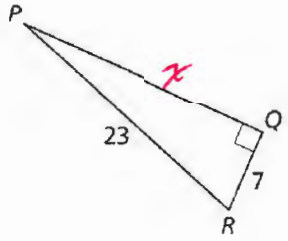
$m\angle E \approx 41°$

$3\sqrt{7} + x^2 = 12^2$

$x^2 = 81$

$x = 9$

40)



$\sin P = \frac{7}{23}$

$m\angle P \approx 18°$

$m\angle R \approx 72°$

$x^2 + 7^2 = 23^2$

$x^2 = 480$

$x = 4\sqrt{30} \approx 21.9$