Name Answers Date

Chapter 8 Review - Part 2

Complete the following trigonometric ratios for what they represent.

1) $\sin\theta = \frac{opp}{hyp}$ 2) $\cos\theta = \frac{adj}{opp}$ 3) $\tan\theta = \frac{opp}{adj}$

4) What is sin 40° to the nearest ten-thousands place?

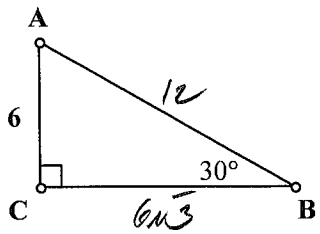
.6428

5) Find x to the nearest degree:

$\cos x = .2179$

$x \approx 77°$

6) For the following, express your answer exactly. DO NOT ROUND (Please rationalize denominators).

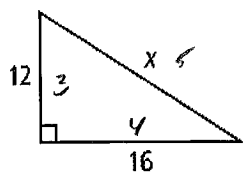


a) $\tan B = \frac{\sqrt{3}}{3}$ b) $\sin B = \frac{1}{2}$

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

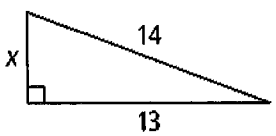
Find the value of x. Express your answer in simplest radical form.

7)



$x = 20$

8)

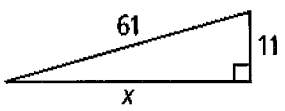


$x^2 + 13^2 = 14^2$

$x^2 = 27$

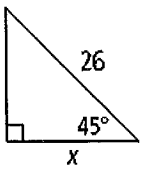
$x = 3\sqrt{3}$

9)



$x = 60$

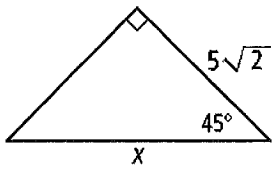
10)



$x = \frac{26}{\sqrt{2}} \frac{\sqrt{2}}{\sqrt{2}}$

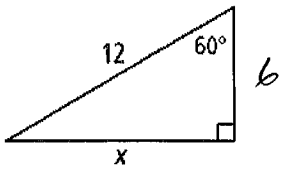
$x = 13\sqrt{2}$

11)



$x = 10$

12)

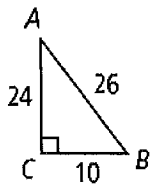


Find each ratio in simplified fraction (exact) form.

13) $\sin B = \frac{24}{26} = \frac{12}{13}$

14) $\cos B = \frac{10}{26} = \frac{5}{13}$

15) $\tan A = \frac{10}{24} = \frac{5}{12}$



Given the lengths of the sides of a triangle, identify the triangle as *acute, right,* or *obtuse.*

16) 9, 40, 41

$9^2 + 40^2 \quad 41^2$

$1681 = 1681$

Right

17) 10, 16, 20

$10^2 + 16^2 \quad 20^2$

$356 < 400$

Obtuse

18) 12, 15, 18

$12^2 + 15^2 \quad 18^2$

$369 > 324$

Acute

For each pair of numbers, find a third whole number such that the three numbers form a Pythagorean triple.

19) 33, 55

44

20) 42, 58

70

7 24 25

3 4 5

8 15 17

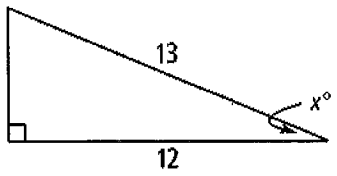
21) 60, 65

5 12 13

25

Find the value of x. Round lengths to the nearest tenth and angle measures to the nearest degree.

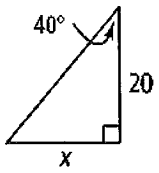
22)



$\cos x = \frac{12}{13}$

$x = 23^\circ$

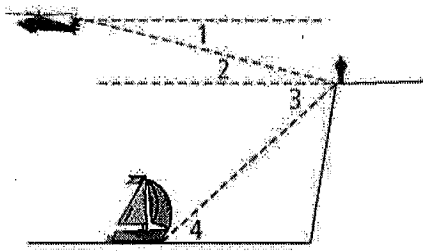
23)



$\tan 40^\circ = \frac{x}{20}$

$x \approx 16.8$

What is the description of each angle as it relates to the diagram?



24) $\angle 1$ Angle of depression

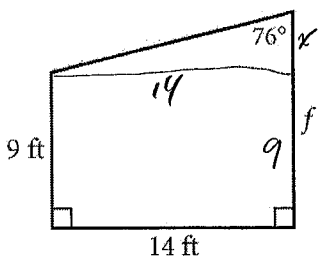
25) $\angle 2$ Angle of ascension

26) $\angle 3$ Angle of depression

27) $\angle 4$ Angle of ascension

Find the value of the missing vairable. Round lengths to the nearest tenth.

28)

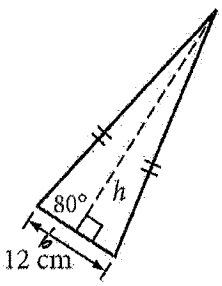


$\tan 76 = \frac{14}{x}$

$x \approx 3.5$

$f = 3.5 + 9 \approx 12.5 \text{ ft}$

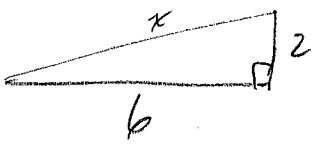
29)



$\tan 80^\circ = \frac{h}{6}$

$h \approx 34 \text{ cm}$

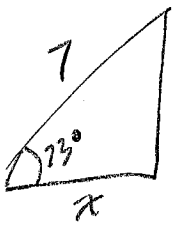
30) A town recreation hall needs to build a ramp. The height of the ramp must be 2 ft. The ramp will start 6 ft from the door. To the nearest tenth of a foot, how long will the ramp be?



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

$x \approx 6.3$ ft

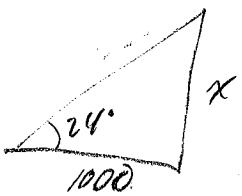
31) A ladder 7 m long stands on level ground and makes a 73° angle with the ground as it rests against a wall. How far from the wall is the base of the ladder?



$\cos 73° = \frac{x}{7}$

$x \approx 2.0$ m

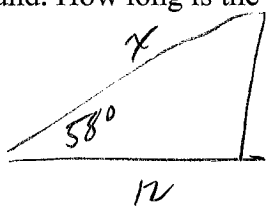
32) To site the top of a building 1000 feet away, you look up 24° from the horizontal. What is the height of the building?



$\tan 24° = \frac{x}{1000}$

$x \approx 445.2$ ft

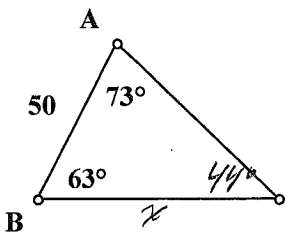
33) A guy wire is anchored 12 feet from the base of a pole. The wire makes a 58° angle with the ground. How long is the wire?



$\cos 58° = \frac{12}{x}$

$x \approx 22.6$ ft

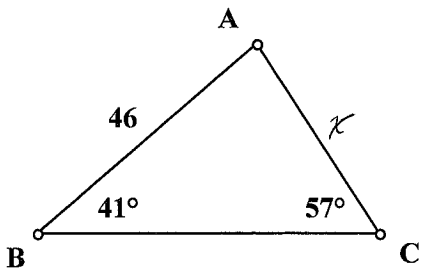
34) Find the length of side BC to the nearest unit.



$\frac{\sin 44°}{50} = \frac{\sin 73°}{x}$

$x \approx 69$

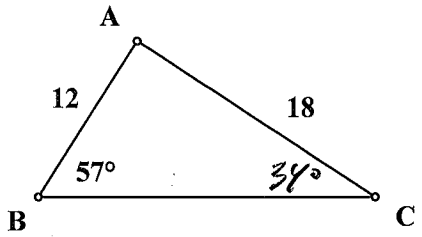
35) Find the length of side AC to the nearest unit.



$\frac{\sin 57°}{46} = \frac{\sin 41°}{x}$

$x = 36$

36) Find the measure of angle A to the nearest degree.

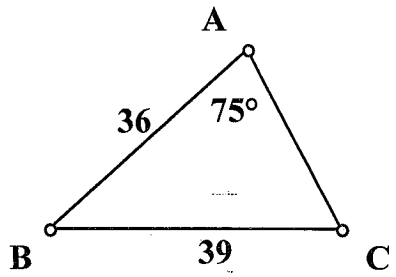


$\frac{\sin 57^\circ}{18} = \frac{\sin C}{12}$

$m\angle C \approx 34^\circ$

$\boxed{m\angle A = 89^\circ}$

37) Find the measure of angle B to the nearest degree.

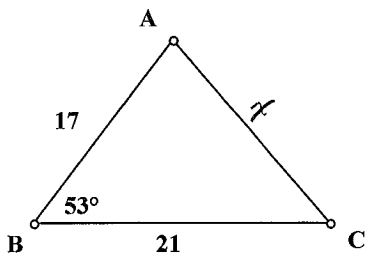


$\frac{\sin 75^\circ}{39} = \frac{\sin C}{36}$

$m\angle C \approx 63^\circ$

$\boxed{m\angle B = 42^\circ}$

38) Find the measure of side AC.



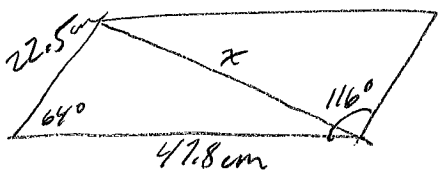
$x^2 = 17^2 + 21^2 - 2(17)(21)\cos 53^\circ$

$x^2 = 289 + 441 - 714\cos 53^\circ$

$x^2 \approx 300.3$

$\boxed{x \approx 17.3}$

39) A parallelogram has side lengths 22.5 cm and 47.8 cm. One angle measures 116°. What is the length of the shorter diagonal?



$x^2 = 22.5^2 + 47.8^2 - 2(22.5)(47.8)\cos 64^\circ$

$x^2 = 506.25 + 2284.84 - 2151\cos 64^\circ$

$x^2 \approx 1848.2$

$\boxed{x \approx 43.0 \text{ cm}}$