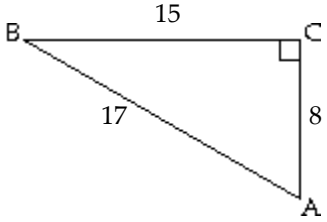
MATH 1720 Name_____
Exam 1 Review Problems

Review your notes and homework problems in addition to this worksheet.
The exam covers 6.1 – 6.3, 8.1, 8.2

Find the exact values of the indicated trigonometric functions. Write fractions in lowest terms.

1) 1) _____



Find sec A and csc A.

Find the requested function value of θ, given θ is an acute angle.

2) If $\csc\theta = \frac{8}{3}$, find $\cot\theta$. 2) _____

3) If $\tan\alpha = 0.3643$, then find $\cot\alpha$. Round to nearest thousandths. 3) _____

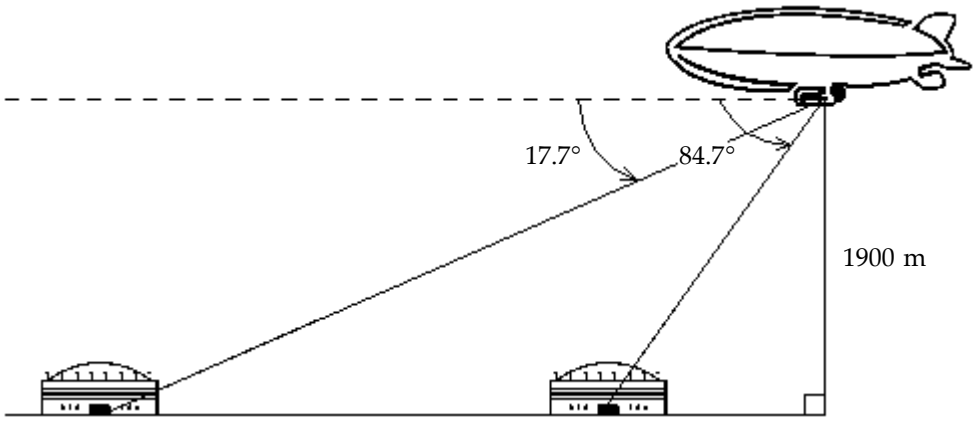
Without using a calculator, give the exact trigonometric function values with rational denominators.

4) $\cos 30°$ 4) _____

5) $\sec 45°$ 5) _____

Solve.

6) A blimp is 1900 meters high in the air and measures the angles of depression to two stadiums to the west of the blimp. If those measurements are 84.7° and 17.7°, how far apart are the two stadiums to the nearest meter? 6) _____



Convert to decimal degree notation. Round to two decimal places.

7) 41°14' 7) _____

Convert the angle measures to degrees, minutes, and seconds. Round seconds to whole units, if necessary.

8) 28.19° 8) _____

Use a calculator to find the function value to four decimal places.

9) csc 51°45'37'' 9) _____

Find the acute angle θ, to the nearest hundredth of a degree, for the given function value.

10) $\sin\theta = 0.5182$ 10) _____

11) $\csc\theta = 8.208$ 11) _____

Find the exact acute angle θ for the given function value.

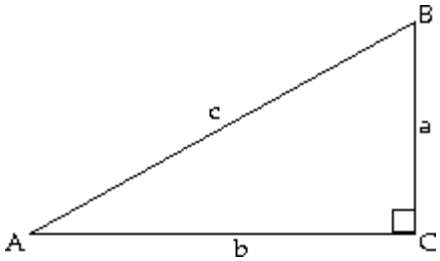
12) $\tan\theta = \sqrt{3}$ 12) _____

13) $\csc\theta = 2$ 13) _____

Use the cofunction and reciprocal identities to answer the question.

14) $\cos 35° = \_\_\_\_\_\ 55° = \frac{1}{\_\_\_\_\_}$ 14) _____ 35°

Solve the right triangle.

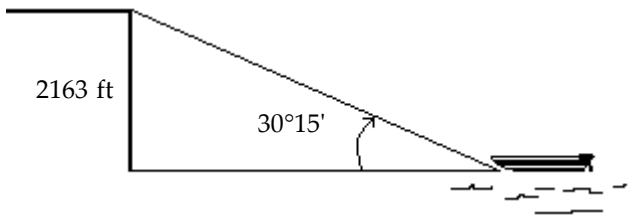


15) $a = 17.4, c = 20.5$ 15) _____

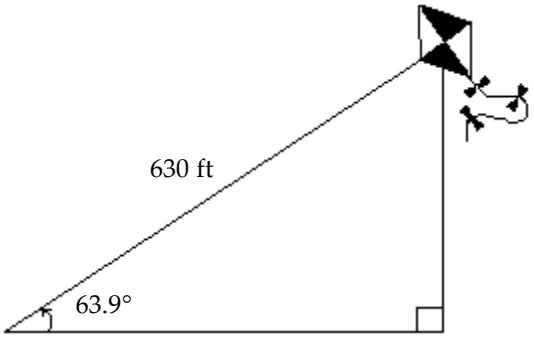
16) $B = 57.9°, c = 0.0771$ 16) _____

Solve.

17) From a boat on the river below a dam, the angle of elevation to the top of the dam is 30°15'. If the dam is 2163 feet above the level of the river, how far is the boat from the base of the dam (to the nearest foot)? 17) _____



18) Your math class is going to test new digital clinometers by measuring the angle of elevation of a kite you will fly. The kite flies to an angle of 63.9° on 630 feet of string. Assuming the the string is taut, how high is the kite to the nearest foot? 18) _____



State in which quadrant the terminal side of the given angle lies.

19) 1283° 19) _____

Find the measures of two angles, one positive and one negative, that are coterminal with the given angle.

20) 139° 20) _____

21) –215° 21) _____

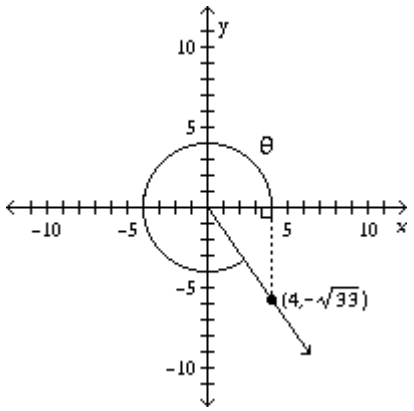
Solve.

22) Find the complement of an angle whose measure is 20.31°. 22) _____

23) Find the supplement of an angle whose measure is 24.71°. 23) _____

Find the trigonometric function value for the angle shown.

24) cos θ 24) _____



The terminal side of angle θ in standard position lies on the given line in the given quadrant. Find sin θ, cos θ, and tan θ

25) y = –6x; quadrant II 25) _____

26) 2x + 3y = 0; quadrant III 26) _____

Find the trigonometric function value of angle θ.

27) $\csc\theta = -\frac{13}{3}$ and θ in quadrant III 27) _____

Find $\cot\theta$.

28) $\tan\theta = -\frac{10}{7}$ and θ in quadrant II 28) _____

Find $\cos\theta$.

Find the reference angle for the given angle.

29) 300° 29) _____

30) –315° 30) _____

Find the exact function value if it exists.

31) sin 315° 31) _____

32) cos (–210°) 32) _____

Find the exact trigonometric function value.

33) csc (–2040°) 33) _____

Find the sign of the six trigonometric function values for the given angle.

34) –101° 34) _____

Use a calculator to find the function value to four decimal places.

35) cot (–535°) 35) _____

Use a calculator to find a nonnegative angle less than 360° for the function value.

36) $\sin\theta = -0.1736$, $180° < \theta < 270°$ 36) _____

37) $\cos\theta = -0.6691$, $90° < \theta < 180°$ 37) _____

38) $\csc\theta = -3.4203$, $270° < \theta < 360°$ 38) _____

Solve the triangle, if possible. Round to the nearest hundredth.

39) B = 52.8° 39) _____
C = 114.6°
b = 10.13

40) B = 86.5° 40) _____
b = 7.86
a = 15.5

41) A = 65.3° 41) _____
a = 2.15 km
b = 2.25 km

Find the area of triangle.

42) A = 35.0°, b = 14.1 in., c = 6.8 in. Round to the nearest whole number. 42) _____

Solve.

43) To find the distance AB across a river, a distance BC of 241 m is laid off on one side of the river. It is found that B = 108.6° and C = 14.9°. Find AB. Round to the nearest meter. 43) _____

44) A homeowner wants to fence in a triangular garden. One side of the garden is edged by a brick wall and 20 feet of fencing is purchased to fence in the other two sides. The angle that one edge of the garden makes with the wall is 20° and 12 feet of fencing is needed for this edge. Is there enough fencing left to edge the second side? 44) _____

Solve the triangle, if possible. Round to the nearest hundredth.

45) a = 7.6
b = 13.7
c = 16.8 45) _____

46) C = 118.3°
a = 7.70 km
b = 8.78 km 46) _____

Decide whether to use the law of sines or the law of cosines. Then solve the triangle if possible. Round to the nearest hundredth, unless otherwise indicated.

47) A = 30.0°
a = 6.77
b = 13.54 47) _____

Solve.

48) Two points, A and B, are on opposite sides of a building. A surveyor chooses a third point, C, 64 yd from B and 104 yd from A, with angle ACB measuring 63.1°. How far apart are A and B to the nearest yard? 48) _____

49) A batter in a baseball game drops a bunt down the first–base line. It rolls 42 ft at an angle of 36° with the base path. The pitcher's mound is 60.5 ft from home plate. How far must the pitcher travel to pick up the ball to the nearest foot? Note: a baseball diamond is a square. 49) _____

50) Two ships leave a harbor together traveling on courses that have an angle of 130° between them. If they each travel 538 miles, how far apart are they to the nearest mile? 50) _____

1) $\sec A = \frac{17}{8}$; $\csc A = \frac{17}{15}$

2) $\frac{\sqrt{55}}{3}$

3) 2.745

4) $\frac{\sqrt{3}}{2}$

5) $\sqrt{2}$

6) 5777 m

7) 41.23°

8) 28°11'24"

9) 1.2732

10) 31.21°

11) 7.00°

12) 60°

13) 30°

14) sin, sec

15) A = 58.1, B = 31.9, b = 10.8

16) A = 32.1°, a = 0.041, b = 0.0653

17) 3709 ft

18) 566 ft

19) III

20) 499°; –221°

21) 145°; –575°

22) 69.69°

23) 155.29°

24) $\cos \theta = \frac{4}{7}$

25) $\sin \theta = \frac{6\sqrt{37}}{37}$;

$\cos \theta = -\frac{\sqrt{37}}{37}$;

$\tan \theta = -6$

26) $\sin \theta = -\frac{2\sqrt{13}}{13}$;

$\cos \theta = -\frac{3\sqrt{13}}{13}$;

$\tan \theta = \frac{2}{3}$

27) $\frac{4\sqrt{10}}{3}$

28) $-\frac{7\sqrt{149}}{149}$

29) 60°

30) 45°

31) $-\frac{\sqrt{2}}{2}$

32) $-\frac{\sqrt{3}}{2}$

33) $\frac{2\sqrt{3}}{3}$

34) Positive: tangent and cotangent; negative: sine, cosine, secant, cosecant

35) 11.4297

36) 190°

37) 132°

38) 343°

39) A = 12.6°, a = 2.77, c = 11.56

40) No solution

41) B = 71.9°, C = 42.8°, c = 1.61 km or
B = 108.1°, C = 6.6°, c = 0.27 km

42) 27 $in.^2$

43) 74 m

44) Yes

45) A = 26.44°, B = 53.38°, C = 100.18°

46) c = 14.16 km, A = 28.61°, B = 33.09°

47) Law of sines; B = 90.0°, C = 60.0°, c = 11.73

48) 94 yd

49) 20 ft

50) 975 mi