Name: _____ Date: _____

Chapter 4 Practice Test

BLM 4–15

For questions 1 to 4, select the best answer.

1. An equivalent expression for $\frac{\sin x}{\cos x}$ is

A $\cos^2 x$
B $\cot x$
C $\tan x$
D $\sin^2 x$

2. A co-terminal angle for 240° is

A 60°
B −120°
C 120°
D two of the above are correct

3. For the cosine law to be used, the information needed is

A two sides and their contained angle
B two sides and a non-contained angle
C all angles
D one side and two angles

4. The ambiguous case occurs for a triangle when which set of information is given?

A two sides and their contained angle
B two sides and a non-contained angle
C all angles
D one side and two angles

5. Two kites are being flown by two children at a park. The first child is using 28 m of kite string and has her kite flying at an angle of 60° to the ground. The second child is using 22 m of kite string and his kite is flying at an angle of 45° to the ground.

a) Which kite string is casting the longer shadow on a sunny day when the sun is directly overhead?
b) Determine the length of the longer shadow.

6. ∠K is located in the third quadrant with a secant of −6. Find exact expressions for the other five trigonometric ratios for ∠K.

7. Find two angles for $0° \le x \le 360°$ with

a) a cosecant of 8
b) a secant of −3
c) a cotangent of $-\frac{4}{3}$

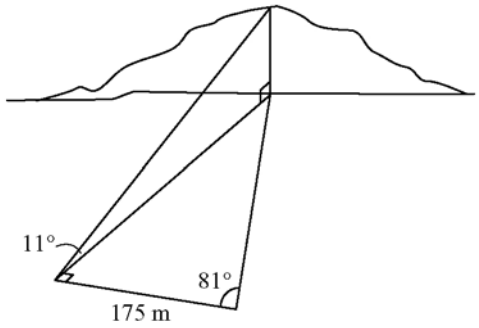
8. In △ABC, ∠A = 28°, a = 12 cm, and b = 17 cm.

a) Determine two possible measures for ∠B.
b) Determine the two possible lengths for side c.

9. Sarah drives east for 45 min at 80 km/h, and then makes a 45° turn onto a dirt road, on which she drives for 30 min at 40 km/h.

a) Determine an exact expression for her distance travelled.
b) Use a calculator to determine the distance to the nearest kilometre.

10. Albert wishes to determine the height of a small mountain that is at the other end of a provincial park, so he takes the measurements shown. Determine the height of the mountain.



11. Prove that $\sin^2 \theta - \sin^4 \theta = \cos^2 \theta - \cos^4 \theta$.

12. Use reciprocal trigonometric ratios to prove that $1 + \cot^2 x = \csc^2 x$ is also an expression of the Pythagorean identity.

13. Prove that $\frac{1 + 2\sin x \cos x}{\sin x + \cos x} = \sin x + \cos x$.

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