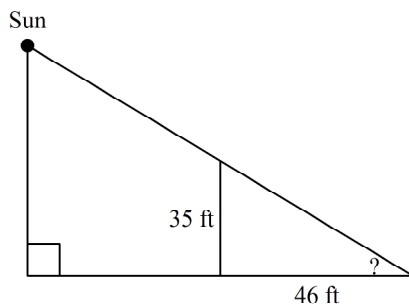


Algebra II Practice Quiz 13.4 - 13.6**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. Find all possible values of $\sin^{-1} \frac{\sqrt{3}}{2}$.
- a. $\frac{\pi}{3} + (2\pi)n, \frac{2\pi}{3} + (2\pi)n$ c. $\frac{\pi}{6} + (2\pi)n, \frac{5\pi}{6} + (2\pi)n$
b. 0.0151 d. $\frac{\pi}{4} + (2\pi)n, \frac{3\pi}{4} + (2\pi)n$
- _____ 2. Evaluate the inverse trigonometric function $\sin^{-1}(-1)$. Give your answer in both radians and degrees.
- a. $\sin^{-1}(-1) = \frac{3\pi}{2}$ or 270° c. $\sin^{-1}(-1) = \pi$ or 180°
b. $\sin^{-1}(-1) = -\frac{\pi}{2}$ or -90° d. $\sin^{-1}(-1) = -\pi$ or -180°
- _____ 3. A 35-foot telephone pole casts a 46-foot shadow on the ground while the sun is shining. To the nearest degree, what is the angle of elevation of the sun from the end of the shadow?



- a. 37° c. 40°
b. 50° d. 53°
- _____ 4. Solve the equation $\sin \theta = 0.3$ to the nearest tenth. Use the restrictions $90^\circ < \theta < 180^\circ$.
- a. $\theta = 17.5^\circ$ c. $\theta = 162.5^\circ$
b. $\theta = 107.5^\circ$ d. $\theta = 197.5^\circ$

- _____ 5. You can use trigonometry to measure the height of a pyramid in Egypt.

[1.] An archaeologist positions himself 260 ft from the base of a pyramid so that his eye level is 5 ft above the ground. If the pyramid is 500 feet in height, what would be the angle of elevation from the archaeologist to the top of the pyramid?

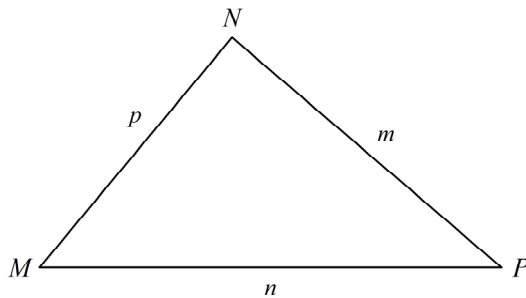
[2.] The angle of elevation from the eye level of an archaeologist to the top of a pyramid whose base is 400 feet away is 50° . To the nearest foot, what is the height of the pyramid?

- | | |
|-----------------------------------|-----------------------------------|
| a. [1.] $\theta \approx 62^\circ$ | c. [1.] $\theta \approx 62^\circ$ |
| [2.] $h \approx 482$ ft | [2.] $h \approx 336$ ft |
| b. [1.] $\theta \approx 63^\circ$ | d. [1.] $\theta \approx 63^\circ$ |
| [2.] $h \approx 477$ ft | [2.] $h \approx 341$ ft |

- _____ 6. A triangle has a side with length 6 feet and another side with length 8 feet. The angle between the sides measures 73° . Find the area of the triangle. Round your answer to the nearest tenth.

- | | |
|------------------------|--------------------------|
| a. 23.0 ft^2 | c. 1752.0 ft^2 |
| b. 45.9 ft^2 | d. 7.0 ft^2 |

- _____ 7. Solve the triangle. $m\angle N = 118^\circ$, $m\angle P = 33^\circ$, and $m = 15$. Round to the nearest tenth.

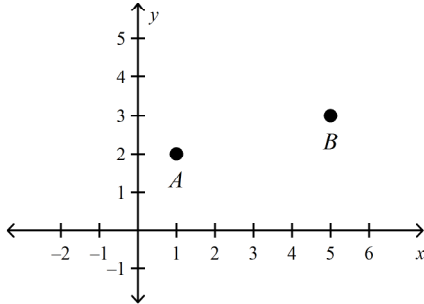


- | | |
|---|---|
| a. $m\angle M = 29^\circ$, $n \approx 8.2$, $p \approx 16.9$ | c. $m\angle M = 29^\circ$, $n \approx 8.2$, $p \approx 13.4$ |
| b. $m\angle M = 29^\circ$, $n \approx 27.3$, $p \approx 16.9$ | d. $m\angle M = 29^\circ$, $n \approx 27.3$, $p \approx 13.4$ |

- _____ 8. Adolfo surveyed a triangular region of land and sent the measurements: $a = 130$ meters, $b = 150$ meters, $m\angle A = 49^\circ$ to the engineer at the office. The engineer called back asking for more information. Determine how many, if any, triangles can be formed using Adolfo's measurements. If possible, find the unknown measurements.

- | |
|---|
| a. Two triangles are possible.
$c_1 = 162.3$ m; $c_2 = 34.6$ m;
$m\angle B_1 = 60.6^\circ$; $m\angle B_2 = 119.4^\circ$
$m\angle C_1 = 70.4^\circ$; $m\angle C_2 = 11.6^\circ$ |
| b. One triangle is possible.
$c = 132.5$ m; $m\angle B = 80.7^\circ$; $m\angle C = 50.3^\circ$ |
| c. Two triangles are possible.
$c_1 = 127.5$ m; $c_2 = 86.9$ m;
$m\angle B_1 = 80.7^\circ$; $m\angle B_2 = 99.3^\circ$
$m\angle C_1 = 50.3^\circ$; $m\angle C_2 = 31.7^\circ$ |
| d. No triangles are possible. |

- _____ 9. To measure the width of a river, a ranger sights a tree across the river about 60° north of east. On the map, her position is marked A . Then, she walks along the river to position B and sights the same tree about 40° north of west. If each unit on the map represents 1 mile, about how many miles from her current position is the tree? Explain how you determined your answer.



- a. Using the Law of Cosines, the distance is about 3.0 miles.
b. Using the Law of Sines, the distance is about 3.0 miles.
c. Using the Law of Sines, the distance is about 3.4 miles.
d. Using the Law of Cosines, the distance is about 3.4 miles.
- _____ 10. Two airplanes leave the airport at the same time. One airplane flies due east at a speed of 300 miles per hour. The other airplane flies east-northeast at a speed of 350 miles per hour (the angle between the two directions is 22.5°). If the planes are at the same altitude, how far apart are they after 2 hours? Round your answer to the nearest mile.
- a. 272 miles
b. 136 miles
c. 100 miles
d. 727 miles
- _____ 11. A building has a triangular floor with sides of 150, 200, and 280 feet. To the nearest square foot, what is the area of the floor of the building?
- a. $14,464 \text{ ft}^2$
b. $213,334 \text{ ft}^2$
c. 315 ft^2
d. $2,898 \text{ ft}^2$

Algebra II Practice Quiz 13.4 - 13.6
Answer Section

MULTIPLE CHOICE

- | | |
|------------|---------------|
| 1. ANS: A | REF: Page 950 |
| 2. ANS: B | REF: Page 951 |
| 3. ANS: A | REF: Page 952 |
| 4. ANS: C | REF: Page 952 |
| 5. ANS: A | |
| 6. ANS: A | REF: Page 958 |
| 7. ANS: B | REF: Page 959 |
| 8. ANS: A | REF: Page 961 |
| 9. ANS: A | REF: Page 965 |
| 10. ANS: A | REF: Page 968 |
| 11. ANS: A | REF: Page 969 |