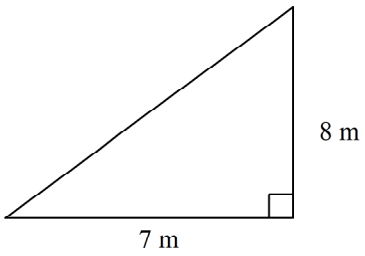
Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Right Triangle Trigonometry Test Review

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

Find the length of the missing side. Leave your answer in simplest radical form.

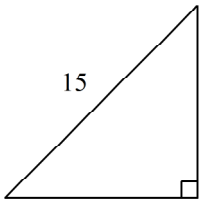
____ 1.



Not drawn to scale

a. $\sqrt{17}$ m b. 113 m c. $\sqrt{113}$ m d. $\sqrt{71}$ m

____ 2.



Not drawn to scale

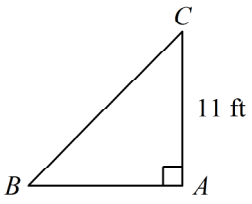
a. $3\sqrt{29}$ cm b. $3\sqrt{21}$ cm c. $\sqrt{21}$ cm d. 3 cm

____ 3. A grid shows the positions of a subway stop and your house. The subway stop is located at (–5, 2) and your house is located at (–9, 9). What is the distance, to the nearest unit, between your house and the subway stop?
a. 5 b. 13 c. 8 d. 18

____ 4. A triangle has sides of lengths 12, 14, and 19. Is it a right triangle? Explain.
a. yes; $12^2 + 14^2 \neq 19^2$ c. no; $12^2 + 14^2 \neq 19^2$
b. no; $12^2 + 14^2 = 19^2$ d. yes; $12^2 + 14^2 = 19^2$

____ 5. A triangle has side lengths of 10 cm, 24 cm, and 33 cm. Classify it as acute, obtuse, or right.
a. acute b. right c. obtuse

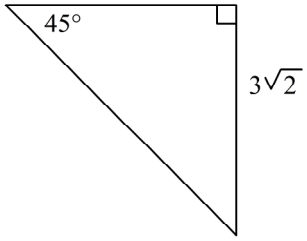
____ 6. In triangle ABC, $\angle A$ is a right angle and $m\angle B = 45°$. Find BC. If you answer is not an integer, leave it in simplest radical form.



Not drawn to scale

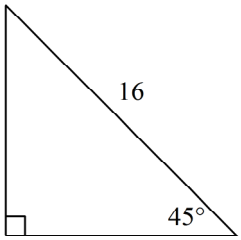
a. 22 ft b. $22\sqrt{2}$ ft c. 11 ft d. $11\sqrt{2}$ ft

____ 7. Find the length of the hypotenuse.



a. 12 b. 6 c. 5 d. 18

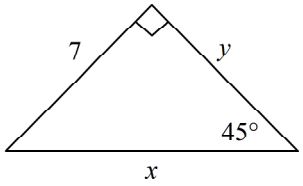
____ 8. Find the length of the leg. If your answer is not an integer, leave it in simplest radical form.



Not drawn to scale

a. 128 b. $8\sqrt{2}$ c. 16 d. $2\sqrt{2}$

____ 9. Find the lengths of the missing sides in the triangle. Write your answers as integers or as decimals rounded to the nearest tenth.



Not drawn to scale

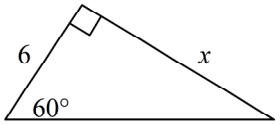
a. $x = 7, y = 9.9$ b. $x = 9.9, y = 7$ c. $x = 4.9, y = 6.1$ d. $x = 6.1, y = 4.9$

____ 10. The area of a square garden is 50 m^2. How long is the diagonal?

a. 25 m b. 100 m c. $5\sqrt{6}$ m d. 10 m

Find the value of the variable(s). If your answer is not an integer, leave it in simplest radical form.

____ 11.

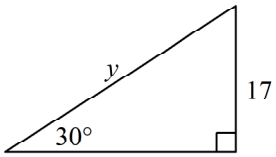


12

Not drawn to scale

a. 2 b. $12\sqrt{3}$ c. $\frac{1}{2}$ d. $6\sqrt{3}$

____ 12.



x

Not drawn to scale

a. $x = 17, y = 34\sqrt{3}$ c. $x = 34\sqrt{3}, y = 17$

b. $x = 34, y = 17\sqrt{3}$ d. $x = 17\sqrt{3}, y = 34$

____ 13. The length of the hypotenuse of a 30°-60°-90° triangle is 4. Find the perimeter.

a. $4 + 12\sqrt{3}$ c. $2 + 6\sqrt{3}$

b. $6 + 2\sqrt{3}$ d. $12 + 4\sqrt{3}$

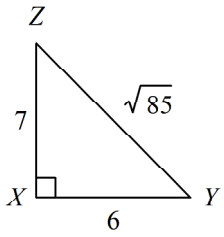
____ 14. A piece of art is in the shape of an equilateral triangle with sides of 7 in. Find the area of the piece of art. Round your answer to the nearest tenth.

a. none of these b. 42.4 $in.^2$ c. 17.3 $in.^2$ d. 21.2 $in.^2$

____ 15. A sign is in the shape of a rhombus with a 60° angle and sides of 9 cm long. Find its area to the nearest tenth.

a. 70.1 cm^2 b. 3.9 cm^2 c. 7.8 cm^2 d. 35.1 cm^2

____ 16. Write the tangent ratios for $\angle Y$ and $\angle Z$.



Not drawn to scale

a. $\tan Y = \frac{6}{7}$; $\tan Z = \frac{7}{6}$

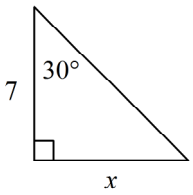
c. $\tan Y = \frac{7}{6}$; $\tan Z = \frac{6}{7}$

b. $\tan Y = \frac{\sqrt{85}}{7}$; $\tan Z = \frac{\sqrt{85}}{6}$

d. $\tan Y = \frac{7}{\sqrt{85}}$; $\tan Z = \frac{6}{\sqrt{85}}$

Find the value of *x*. Round your answer to the nearest tenth.

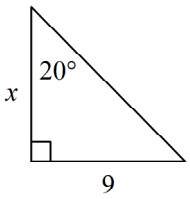
____ 17.



Not drawn to scale

a. 3.5 b. 12.1 c. 6.1 d. 4

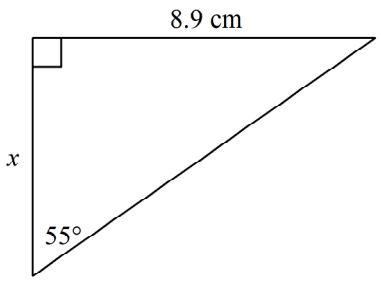
____ 18.



Not drawn to scale

a. 3.3 b. 3.1 c. 24.7 d. 8.5

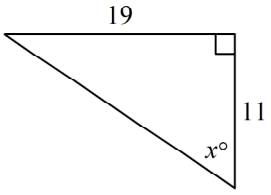
____ 19.



a. 6.2 cm b. 12.7 cm c. 15.5 cm d. 10.9 cm

Find the value of *x* to the nearest degree.

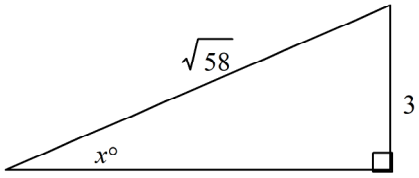
____ 20.



Not drawn to scale

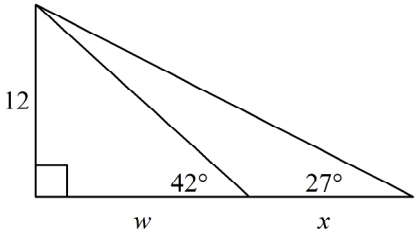
a. 30 b. 60 c. 70 d. 85

____ 21.



a. 67 b. 23 c. 83 d. 53

____ 22. Find the value of *w*, then *x*. Round lengths of segments to the nearest tenth.



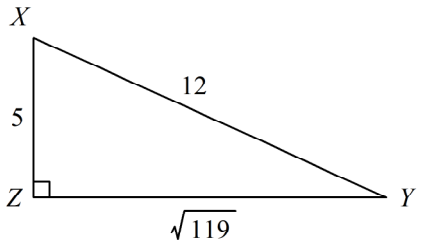
a. $w = 13.3, x = 10.2$
b. $w = 10.8, x = 6.1$
c. $w = 13.3, x = 23.6$
d. $w = 10.8, x = 16.9$

____ 23. Find the missing value to the nearest hundredth.

$\tan \blacksquare = 45$

a. 45.37° b. 63.37° c. 88.73° d. 83.37°

____ 24. Write the ratios for sin X and cos X.



a. $\sin X = \frac{\sqrt{119}}{5}, \cos X = \frac{5}{\sqrt{119}}$

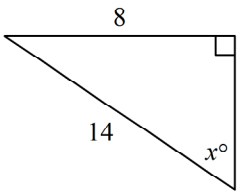
c. $\sin X = \frac{\sqrt{119}}{12}, \cos X = \frac{5}{12}$

b. $\sin X = \sqrt{119}, \cos X = 5$

d. $\sin X = \frac{5}{\sqrt{119}}, \cos X = \frac{\sqrt{119}}{5}$

Find the value of *x*. Round to the nearest degree.

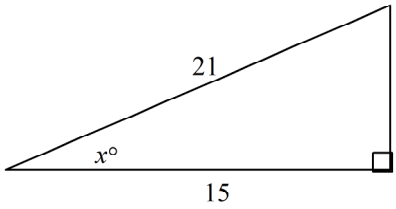
____ 25.



Not drawn to scale

a. 55 b. 35 c. 30 d. 34

____ 26.



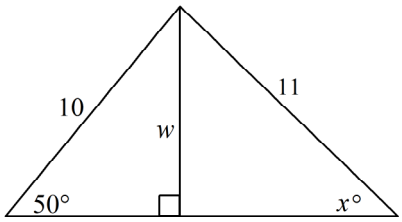
Not drawn to scale

a. 41 b. 36 c. 46 d. 44

____ 27. Viola drives 170 meters up a hill that makes an angle of 6° with the horizontal. To the nearest tenth of a meter, what horizontal distance has she covered?

a. 171.5 m b. 169.1 m c. 1617.4 m d. 17.8 m

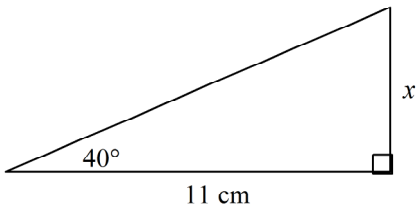
____ 28. Find the value of w and then x. Round lengths to the nearest tenth and angle measures to the nearest degree.



a. $w = 7.7, x = 44$
b. $w = 6.4, x = 54$
c. $w = 7.7, x = 54$
d. $w = 6.4, x = 44$

Find the value of *x*. Round the length to the nearest tenth.

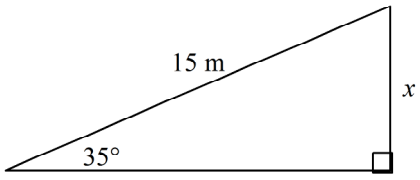
____ 29.



Not drawn to scale

a. 7.1 cm
b. 13.1 cm
c. 9.2 cm
d. 8.4 cm

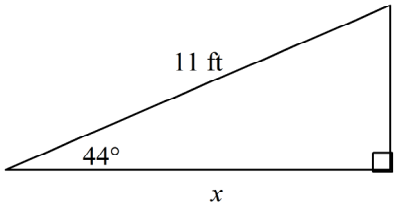
____ 30.



Not drawn to scale

a. 26.2 m
b. 10.5 m
c. 8.6 m
d. 12.3 m

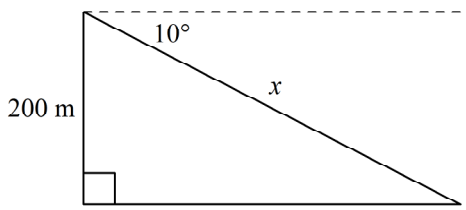
____ 31.



Not drawn to scale

a. 7.6 ft
b. 10.6 ft
c. 15.3 ft
d. 7.9 ft

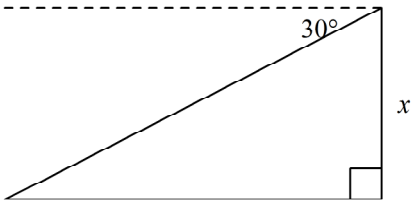
____ 32.



Not drawn to scale

a. 1134.3 m b. 1151.8 m c. 34.7 m d. 203.1 m

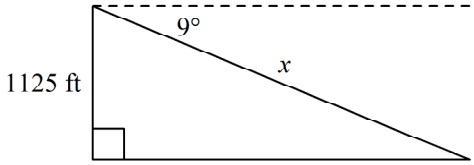
____ 33.



Not drawn to scale

a. 15.6 yd b. 10.4 yd c. 9 yd d. 31.2 yd

____ 34. To approach the runway, a small plane must begin a 9° descent starting from a height of 1125 feet above the ground. To the nearest tenth of a mile, how many miles from the runway is the airplane at the start of this approach?



Not drawn to scale

a. 1.3 mi b. 1.4 mi c. 0.2 mi d. 7,191.5 mi

____ 35. A spotlight is mounted on a wall 7.4 feet above a security desk in an office building. It is used to light an entrance door 9.3 feet from the desk. To the nearest degree, what is the angle of depression from the spotlight to the entrance door?

a. 39° b. 51° c. 53° d. 37°

____ 36. Find the angle of elevation of the sun from the ground to the top of a tree when a tree that is 10 yards tall casts a shadow 14 yards long. Round to the nearest degree.

a. 54° b. 36° c. 46° d. 44°

Short Answer

37. A highway makes an angle of 6° with the horizontal. This angle is maintained for a horizontal distance of 8 miles.
    a. Draw and label a diagram to represent this situation.
    b. To the nearest hundredth of a mile, how high does the highway rise in this 8-mile section? Show the steps you use to find the distance.

38. A forest ranger spots a fire from a 21-foot tower. The angle of depression from the tower to the fire is 12°.
    a. Draw a diagram to represent this situation.
    b. To the nearest foot, how far is the fire from the base of the tower? Show the steps you use to find the solution.

Right Triangle Trigonometry Test Review
Answer Section

MULTIPLE CHOICE

1. ANS: C PTS: 1 DIF: L2
   REF: 8-1 The Pythagorean Theorem and Its Converse OBJ: 8-1.1 The Pythagorean Theorem
   NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.1.6 | ADP K.1.2 | ADP K.5 | ADP K.10.3
   STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4c | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
   TOP: 8-1 Example 2 KEY: Pythagorean Theorem | leg | hypotenuse
2. ANS: B PTS: 1 DIF: L2
   REF: 8-1 The Pythagorean Theorem and Its Converse OBJ: 8-1.1 The Pythagorean Theorem
   NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.1.6 | ADP K.1.2 | ADP K.5 | ADP K.10.3
   STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4c | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
   TOP: 8-1 Example 2 KEY: Pythagorean Theorem | leg | hypotenuse
3. ANS: C PTS: 1 DIF: L3
   REF: 8-1 The Pythagorean Theorem and Its Converse OBJ: 8-1.1 The Pythagorean Theorem
   NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.1.6 | ADP K.1.2 | ADP K.5 | ADP K.10.3
   STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4c | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
   TOP: 8-1 Example 3
   KEY: Pythagorean Theorem | leg | hypotenuse | word problem | problem solving
4. ANS: C PTS: 1 DIF: L2
   REF: 8-1 The Pythagorean Theorem and Its Converse
   OBJ: 8-1.2 The Converse of the Pythagorean Theorem
   NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.1.6 | ADP K.1.2 | ADP K.5 | ADP K.10.3
   STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4c | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
   TOP: 8-1 Example 4 KEY: Pythagorean Theorem
5. ANS: C PTS: 1 DIF: L2
   REF: 8-1 The Pythagorean Theorem and Its Converse
   OBJ: 8-1.2 The Converse of the Pythagorean Theorem
   NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.1.6 | ADP K.1.2 | ADP K.5 | ADP K.10.3
   STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4c | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
   TOP: 8-1 Example 5 KEY: right triangle | obtuse triangle | acute triangle
6. ANS: D PTS: 1 DIF: L3 REF: 8-2 Special Right Triangles
   OBJ: 8-2.1 45°-45°-90° Triangles NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.5.1 | ADP K.5
   STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4a | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
   TOP: 8-2 Example 1 KEY: special right triangles
7. ANS: B PTS: 1 DIF: L2 REF: 8-2 Special Right Triangles
   OBJ: 8-2.1 45°-45°-90° Triangles NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.5.1 | ADP K.5
   STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4a | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
   TOP: 8-2 Example 1 KEY: special right triangles | hypotenuse
8. ANS: B PTS: 1 DIF: L2 REF: 8-2 Special Right Triangles
   OBJ: 8-2.1 45°-45°-90° Triangles NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.5.1 | ADP K.5
   STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4a | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
   TOP: 8-2 Example 2 KEY: special right triangles | hypotenuse | leg

9. ANS: B PTS: 1 DIF: L3 REF: 8-2 Special Right Triangles
OBJ: 8-2.1 45°-45°-90° Triangles NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.5.1 | ADP K.5
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4a | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
TOP: 8-2 Example 2 KEY: special right triangles | hypotenuse | leg
10. ANS: D PTS: 1 DIF: L2 REF: 8-2 Special Right Triangles
OBJ: 8-2.1 45°-45°-90° Triangles NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.5.1 | ADP K.5
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4a | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
TOP: 8-2 Example 3 KEY: special right triangles | diagonal
11. ANS: D PTS: 1 DIF: L2 REF: 8-2 Special Right Triangles
OBJ: 8-2.2 Using 30°-60°-90° Triangles NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.5.1 | ADP K.5
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4a | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
TOP: 8-2 Example 4 KEY: special right triangles | leg | hypotenuse
12. ANS: D PTS: 1 DIF: L2 REF: 8-2 Special Right Triangles
OBJ: 8-2.2 Using 30°-60°-90° Triangles NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.5.1 | ADP K.5
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4a | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
TOP: 8-2 Example 4 KEY: special right triangles | leg | hypotenuse
13. ANS: B PTS: 1 DIF: L3 REF: 8-2 Special Right Triangles
OBJ: 8-2.2 Using 30°-60°-90° Triangles NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.5.1 | ADP K.5
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4a | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
TOP: 8-2 Example 4 KEY: special right triangles | perimeter
14. ANS: D PTS: 1 DIF: L2 REF: 8-2 Special Right Triangles
OBJ: 8-2.2 Using 30°-60°-90° Triangles NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.5.1 | ADP K.5
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4a | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
TOP: 8-2 Example 5 KEY: area of a triangle | word problem | problem solving
15. ANS: A PTS: 1 DIF: L2 REF: 8-2 Special Right Triangles
OBJ: 8-2.2 Using 30°-60°-90° Triangles NAT: NAEP 2005 G3d | ADP I.4.1 | ADP J.5.1 | ADP K.5
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 A.4a | NJ 4.2.12 D.1 | NJ 4.2.12 E.1b
TOP: 8-2 Example 5 KEY: rhombus | word problem | problem solving
16. ANS: C PTS: 1 DIF: L3 REF: 8-3 The Tangent Ratio
OBJ: 8-3.1 Using Tangents in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-3 Example 1
KEY: leg adjacent to angle | leg opposite angle | tangent | tangent ratio
17. ANS: D PTS: 1 DIF: L2 REF: 8-3 The Tangent Ratio
OBJ: 8-3.1 Using Tangents in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-3 Example 2 KEY: side length using tangent | tangent | tangent ratio
18. ANS: C PTS: 1 DIF: L2 REF: 8-3 The Tangent Ratio
OBJ: 8-3.1 Using Tangents in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-3 Example 2 KEY: side length using tangent | tangent | tangent ratio

19. ANS: A PTS: 1 DIF: L3 REF: 8-3 The Tangent Ratio
OBJ: 8-3.1 Using Tangents in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-3 Example 2 KEY: side length using tangent | tangent | tangent ratio
20. ANS: B PTS: 1 DIF: L2 REF: 8-3 The Tangent Ratio
OBJ: 8-3.1 Using Tangents in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-3 Example 3
KEY: inverse of tangent | tangent | tangent ratio | angle measure using tangent
21. ANS: B PTS: 1 DIF: L3 REF: 8-3 The Tangent Ratio
OBJ: 8-3.1 Using Tangents in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-3 Example 3
KEY: inverse of tangent | tangent | tangent ratio | angle measure using tangent
22. ANS: A PTS: 1 DIF: L3 REF: 8-3 The Tangent Ratio
OBJ: 8-3.1 Using Tangents in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-3 Example 2
KEY: tangent | side length using tangent | tangent ratio | problem solving
23. ANS: C PTS: 1 DIF: L3 REF: 8-3 The Tangent Ratio
OBJ: 8-3.1 Using Tangents in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-3 Example 3 KEY: angle measure using tangent
24. ANS: C PTS: 1 DIF: L3 REF: 8-4 Sine and Cosine Ratios
OBJ: 8-4.1 Using Sine and Cosine in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-4 Example 1 KEY: cosine | sine | sine ratio | cosine ratio
25. ANS: B PTS: 1 DIF: L2 REF: 8-4 Sine and Cosine Ratios
OBJ: 8-4.1 Using Sine and Cosine in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-4 Example 3
KEY: inverse of cosine and sine | angle measure using sine and cosine | sine
26. ANS: D PTS: 1 DIF: L2 REF: 8-4 Sine and Cosine Ratios
OBJ: 8-4.1 Using Sine and Cosine in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-4 Example 3
KEY: inverse of cosine and sine | angle measure using sine and cosine | cosine

27. ANS: B PTS: 1 DIF: L3 REF: 8-4 Sine and Cosine Ratios
OBJ: 8-4.1 Using Sine and Cosine in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-4 Example 2
KEY: cosine | word problem | side length using since and cosine | problem solving | cosine ratio

28. ANS: A PTS: 1 DIF: L3 REF: 8-4 Sine and Cosine Ratios
OBJ: 8-4.1 Using Sine and Cosine in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
KEY: side length using since and cosine | angle measure using sine and cosine | problem solving | sine | inverse of cosine and sine | sine ratio

29. ANS: C PTS: 1 DIF: L2
REF: 8-5 Angles of Elevation and Depression
OBJ: 8-5.1 Using Angles of Elevation and Depression
NAT: NAEP 2005 M1k | ADP I.1.2 | ADP I.4.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-5 Example 2 KEY: tangent | side length using tangent | tangent ratio

30. ANS: C PTS: 1 DIF: L2
REF: 8-5 Angles of Elevation and Depression
OBJ: 8-5.1 Using Angles of Elevation and Depression
NAT: NAEP 2005 M1k | ADP I.1.2 | ADP I.4.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-5 Example 2 KEY: sine | side length using since and cosine | sine ratio

31. ANS: D PTS: 1 DIF: L2
REF: 8-5 Angles of Elevation and Depression
OBJ: 8-5.1 Using Angles of Elevation and Depression
NAT: NAEP 2005 M1k | ADP I.1.2 | ADP I.4.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-5 Example 2 KEY: cosine | side length using since and cosine | cosine ratio

32. ANS: B PTS: 1 DIF: L2
REF: 8-5 Angles of Elevation and Depression
OBJ: 8-5.1 Using Angles of Elevation and Depression
NAT: NAEP 2005 M1k | ADP I.1.2 | ADP I.4.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-5 Example 3
KEY: sine | side length using since and cosine | sine ratio | angles of elevation and depression

33. ANS: B PTS: 1 DIF: L2
REF: 8-5 Angles of Elevation and Depression
OBJ: 8-5.1 Using Angles of Elevation and Depression
NAT: NAEP 2005 M1k | ADP I.1.2 | ADP I.4.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-5 Example 3
KEY: tangent | side length using tangent | tangent ratio | angles of elevation and depression

34. ANS: B PTS: 1 DIF: L2
REF: 8-5 Angles of Elevation and Depression
OBJ: 8-5.1 Using Angles of Elevation and Depression
NAT: NAEP 2005 M1k | ADP I.1.2 | ADP I.4.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-5 Example 3
KEY: side length using since and cosine | word problem | problem solving | sine | angles of elevation and depression | sine ratio

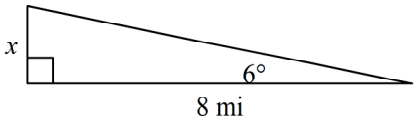
35. ANS: A PTS: 1 DIF: L3
REF: 8-5 Angles of Elevation and Depression
OBJ: 8-5.1 Using Angles of Elevation and Depression
NAT: NAEP 2005 M1k | ADP I.1.2 | ADP I.4.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
KEY: angle measure using tangent | word problem | angles of elevation and depression | problem solving | tangent | inverse of tangent | tangent ratio

36. ANS: B PTS: 1 DIF: L3
REF: 8-5 Angles of Elevation and Depression
OBJ: 8-5.1 Using Angles of Elevation and Depression
NAT: NAEP 2005 M1k | ADP I.1.2 | ADP I.4.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
KEY: angle measure using tangent | word problem | angles of elevation and depression | problem solving | inverse of tangent | tangent ratio

SHORT ANSWER

37. ANS:

a.



b. $\tan 6° = \frac{x}{8}$ Use the tangent ratio.

$x = 8(\tan 6°)$ Solve for x.

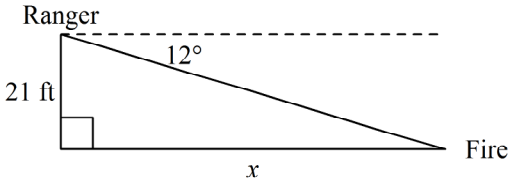
$x \approx 0.84$

The rise is about 0.84 miles.

PTS: 1 DIF: L3 REF: 8-3 The Tangent Ratio
OBJ: 8-3.1 Using Tangents in Triangles
NAT: NAEP 2005 M1m | ADP I.1.2 | ADP I.4.1 | ADP K.11.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-3 Example 2
KEY: problem solving | word problem | tangent | side length using tangent | tangent ratio | multi-part question

38. ANS:

a.



b. $\tan 12° = \frac{21}{x}$ Use the tangent ratio.

$x = \frac{21}{\tan 12°}$ Solve for x.

$x \approx 99$

The fire is about 99 feet from the base of the tower.

PTS: 1 DIF: L3 REF: 8-5 Angles of Elevation and Depression
OBJ: 8-5.1 Using Angles of Elevation and Depression
NAT: NAEP 2005 M1k | ADP I.1.2 | ADP I.4.1 | ADP K.11.2
STA: NJ 4.1.12 A.1 | NJ 4.1.12 B.1 | NJ 4.2.12 A.1 | NJ 4.2.12 D.1 | NJ 4.2.12 E.1c
TOP: 8-5 Example 2
KEY: side length using tangent | word problem | multi-part question | problem solving | tangent | angles of elevation and depression | tangent ratio