8th Grade Chapter 6 Review
Answer Section

1. ANS:

$12^2 + 16^2 = c^2$

$c = \sqrt{400} = 20$

PTS: 1 REF: 6.1 NAT: 8.NS.2 | 8.EE.2 | 8.G.6 | 8.G.7
TOP: Pre Test
KEY: right triangle | right angle | leg | hypotenuse | diagonal of a square | Pythagorean Theorem | theorem | postulate | proof

2. ANS:

$6^2 + x^2 = 15^2$

$x = \sqrt{189} = 3\sqrt{21} \approx 13.75$

PTS: 1 REF: 6.1 NAT: 8.NS.2 | 8.EE.2 | 8.G.6 | 8.G.7
TOP: Pre Test
KEY: right triangle | right angle | leg | hypotenuse | diagonal of a square | Pythagorean Theorem | theorem | postulate | proof

3. ANS:

$5^2 + x^2 = 12^2$

$x^2 = 119$

$x = \sqrt{119} \approx 10.9$

The ladder reaches 10.9 feet up the side of the building.

PTS: 1 REF: 6.1 NAT: 8.NS.2 | 8.EE.2 | 8.G.6 | 8.G.7
TOP: Pre Test
KEY: right triangle | right angle | leg | hypotenuse | diagonal of a square | Pythagorean Theorem | theorem | postulate | proof

4. ANS:

No. This is not a right triangle.

$8^2 + 12^2 = 64 + 144 = 208$

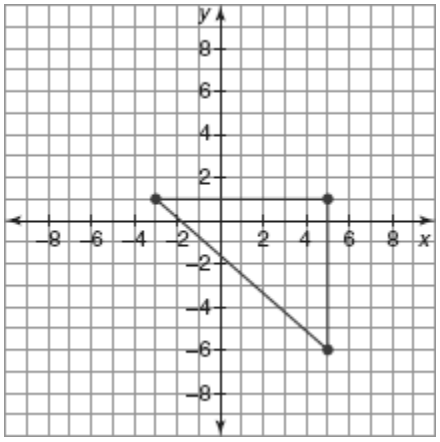
$15^2 = 225$

$208 \neq 225$

The sum of the squares of the lengths of the two shorter sides is not equal to the square of the length of the longest side, so this is not a right triangle.

PTS: 1 REF: 6.2 NAT: 8.EE.2 | 8.G.6 | 8.G.7 | 8.G.8
TOP: Pre Test KEY: converse | Converse of the Pythagorean Theorem | Pythagorean triple

5. ANS:



$$a^2 + b^2 = c^2$$

$$8^2 + 7^2 = c^2$$

$$64 + 49 = c^2$$

$$c^2 = 113$$

$$c = \sqrt{113}$$

$$c \approx 10.6$$

The distance between (−3, 1) and (5, −6) is approximately 10.6 units.

PTS: 1 REF: 6.4 NAT: 8.EE.2 | 8.G.7 | 8.G.8
TOP: Pre Test

6. ANS:

$$a^2 + b^2 = c^2$$

$$18^2 + 10^2 = c^2$$

$$324 + 100 = c^2$$

$$c^2 = 424$$

$$c = \sqrt{424}$$

$$c \approx 20.6$$

The length of diagonal *AC* is approximately 20.6 centimeters.

PTS: 1 REF: 6.5 NAT: 8.EE.2 | 8.G.7 | 8.G.8
TOP: Pre Test

7. ANS:
The length of the hypotenuse is 26.
The hypotenuse is always the longest side of a right triangle.

PTS: 1 REF: 6.1 NAT: 8.NS.2 | 8.EE.2 | 8.G.6 | 8.G.7
TOP: Mid Ch Test
KEY: right triangle | right angle | leg | hypotenuse | diagonal of a square | Pythagorean Theorem | theorem | postulate | proof

8. ANS:

$$5^2 + 8^2 = 17^2$$

$$25 + 64 = 289$$

$$89 \neq 289$$

No. This is not a right triangle because 89 is not equal to 289.

PTS: 1 REF: 6.2 NAT: 8.EE.2 | 8.G.6 | 8.G.7 | 8.G.8
TOP: Mid Ch Test KEY: converse | Converse of the Pythagorean Theorem | Pythagorean triple

9. ANS:

$20^2 + 30^2 = x^2$

$x = \sqrt{1300} \approx 36.1$

Mr. Jeffries needs 36.1 meters of line.

PTS: 1 REF: 6.1 NAT: 8.NS.2 | 8.EE.2 | 8.G.6 | 8.G.7
TOP: Mid Ch Test
KEY: right triangle | right angle | leg | hypotenuse | diagonal of a square | Pythagorean Theorem | theorem | postulate | proof

10. ANS:

$6^2 + 8^2 = x^2$

$x = \sqrt{100} = 10$

Tim and Holly hiked 10 kilometers after lunch.

PTS: 1 REF: 6.1 NAT: 8.NS.2 | 8.EE.2 | 8.G.6 | 8.G.7
TOP: Mid Ch Test
KEY: right triangle | right angle | leg | hypotenuse | diagonal of a square | Pythagorean Theorem | theorem | postulate | proof

11. ANS:

$6^2 + x^2 = 18^2$

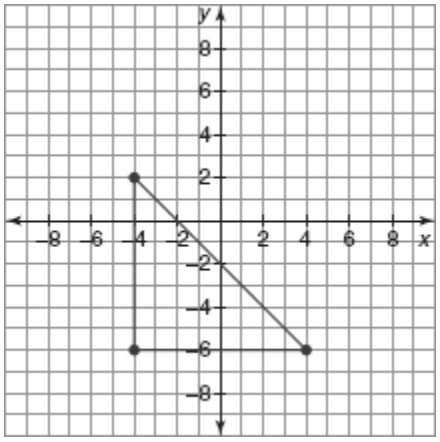
$x^2 = 288$

$x = \sqrt{288} \approx 17.0$

The board reaches about 17.0 feet up the side of the wall.

PTS: 1 REF: 6.1 NAT: 8.NS.2 | 8.EE.2 | 8.G.6 | 8.G.7
TOP: Mid Ch Test
KEY: right triangle | right angle | leg | hypotenuse | diagonal of a square | Pythagorean Theorem | theorem | postulate | proof

12. ANS:



$a^2 + b^2 = c^2$

$8^2 + 8^2 = c^2$

$64 + 64 = c^2$

$c^2 = 128$

$c = \sqrt{128}$

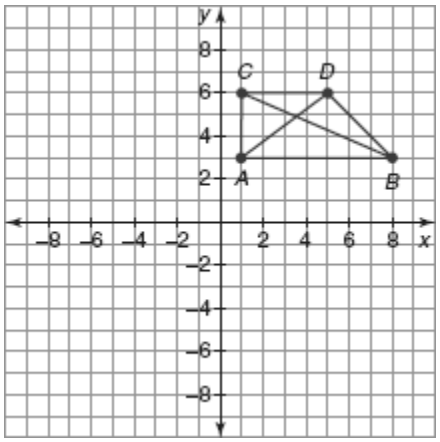
$c \approx 11.3$

The distance between (–4, 2) and (4, –6) is approximately 11.3 units.

PTS: 1 REF: 6.4 NAT: 8.EE.2 | 8.G.7 | 8.G.8
TOP: End Ch Test

13. ANS:

a.



b. $a^2 + b^2 = c^2$

$3^2 + 4^2 = c^2$

$9 + 16 = c^2$

$c^2 = 25$

$c = \sqrt{25}$

$c = 5$

The length of diagonal AC is 5 units.

c. $a^2 + b^2 = c^2$

$7^2 + 3^2 = c^2$

$49 + 9 = c^2$

$c^2 = 58$

$c = \sqrt{58}$

$c \approx 7.6$

The length of diagonal *BD* is approximately 7.6 units.

PTS: 1 REF: 6.5 NAT: 8.EE.2 | 8.G.7 | 8.G.8
TOP: End Ch Test

14. ANS:

a. $d^2 = 4^2 + 12^2$

$= 16 + 144$

$d = \sqrt{160} \approx 12.65$

The length of the second leg is approximately 12.65 inches.

b. $d^2 = 12.65^2 + 6^2$

$= 160.0225 + 36$

$d = \sqrt{196.0225} \approx 14.0$

The length of the three-dimensional diagonal is 14 inches.

c. $d = \sqrt{12^2 + 4^2 + 6^2}$

$d = \sqrt{144 + 16 + 36}$

$d = \sqrt{196}$

$d = 14$

PTS: 1 REF: 6.6 NAT: 8.EE.2 | 8.G.7 | 8.G.8
TOP: End Ch Test

15. ANS: $280

16. ANS: 15.6 ft.

17. ANS: 10 units

18. ANS: 77.33 cm^2

19. ANS: 20 ft.