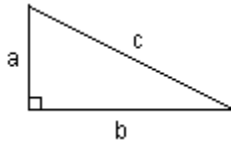


Name \_\_\_\_\_

Use the right triangle shown and find the missing length.  
If necessary, round to three decimal places.



1)  $c = 13, a = 5$

2)  $c = 15, a = 12$

3)  $c = 13, b = 11$

4)  $c = 14, b = 5$

5)  $c = 13, b = 4$

6)  $c = 20, a = 12$

7)  $c = 14, b = 4$

The lengths of the legs of a right triangle are given. Find the hypotenuse. If necessary, round to three decimal places.

8)  $a = 9, b = 12$

9)  $a = 3, b = 4$

10)  $a = 8, b = 5$

11)  $a = 7, b = 9$

12)  $a = 5, b = 12$

13)  $a = 9, b = 5$

14)  $a = 8, b = 6$

15)  $a = 16, b = 12$

**Solve.**

- 16) A supporting wire is to be attached to the top of a 36-foot antenna. If the wire must be anchored 36 feet from the base of the antenna, what length of wire is required?
- 17) A supporting wire is to be attached to the top of a 45-foot antenna. If the wire must be anchored 45 feet from the base of the antenna, what length of wire is required?
- 18) A ladder that is 26 feet long is 10 feet from the base of a wall. How far up the wall does the ladder reach?
- 19) A ladder that is 15 feet long is 9 feet from the base of a wall. How far up the wall does the ladder reach?
- 20) A 30-foot pole is supported by two wires that extend from the top of the pole to points that are each 16 feet from the base of the pole. Find the total length of the two wires.
- 21) A 30-foot pole is supported by two wires that extend from the top of the pole to points that are each 12 feet from the base of the pole. Find the total length of the two wires.
- 22) A rectangular park is 16 km long and 12 km wide. How long is a pedestrian route that runs diagonally across the park?
- 23) A rectangular park is 30 km long and 16 km wide. How long is a pedestrian route that runs diagonally across the park?
- 24) Six times the square of the difference between a number and 5 is  $-24$ . Find the number(s).
- 25) Five times the square of the difference between a number and 5 is  $-20$ . Find the number(s).
- 26) A supporting wire is to be attached to the top of a 29-foot antenna. If the wire must be anchored 29 feet from the base of the antenna, what length of wire is required?
- 27) A 12-foot pole is supported by two wires that extend from the top of the pole to points that are each 8 feet from the base of the pole. Find the total length of the two wires.
- 28) A ladder that is 17 feet long is 8 feet from the base of a wall. How far up the wall does the ladder reach?
- 29) Seven times the square of the difference between a number and 5 is  $-175$ . Find the number(s).

- 30) A supporting wire is to be attached to the top of a 37-foot antenna. If the wire must be anchored 37 feet from the base of the antenna, what length of wire is required?
- 31) A supporting wire is to be attached to the top of a 41-foot antenna. If the wire must be anchored 41 feet from the base of the antenna, what length of wire is required?
- 32) Three times the square of the difference between a number and 5 is  $-108$ . Find the number(s).
- 33) A ladder that is 10 feet long is 6 feet from the base of a wall. How far up the wall does the ladder reach?
- 34) A ladder that is 15 feet long is 9 feet from the base of a wall. How far up the wall does the ladder reach?
- 35) A 20-foot pole is supported by two wires that extend from the top of the pole to points that are each 5 feet from the base of the pole. Find the total length of the two wires.
- 36) A rectangular park is 30 km long and 12 km wide. How long is a pedestrian route that runs diagonally across the park?
- 37) A rectangular park is 16 km long and 15 km wide. How long is a pedestrian route that runs diagonally across the park?
- 38) Six times the square of the difference between a number and 5 is  $-96$ . Find the number(s).
- 39) Five times the square of the difference between a number and 5 is  $-45$ . Find the number(s).
- 40) A supporting wire is to be attached to the top of a 49-foot antenna. If the wire must be anchored 49 feet from the base of the antenna, what length of wire is required?
- 41) A 30-foot pole is supported by two wires that extend from the top of the pole to points that are each 5 feet from the base of the pole. Find the total length of the two wires.
- 42) A ladder that is 13 feet long is 5 feet from the base of a wall. How far up the wall does the ladder reach?
- 43) Seven times the square of the difference between a number and 5 is  $-28$ . Find the number(s).

## Answer Key

Testname: WORKSHEET7.1C\_USINGPERFECTSQUARETRINOMIALTOSOLVEAPPLICATIONS\_V0

- 1) 12
- 2) 9
- 3) 6.928
- 4) 13.077
- 5) 12.369
- 6) 16
- 7) 13.416
- 8) 15
- 9) 5
- 10) 9.434
- 11) 11.402
- 12) 13
- 13) 10.296
- 14) 10
- 15) 20
- 16)  $36\sqrt{2}$  feet
- 17)  $45\sqrt{2}$  feet
- 18) 24 ft
- 19) 12 ft
- 20) 68 ft
- 21)  $12\sqrt{29}$  ft
- 22) 20 km
- 23) 34 km
- 24)  $5 + 2i$  and  $5 - 2i$
- 25)  $5 + 2i$  and  $5 - 2i$
- 26)  $29\sqrt{2}$  feet
- 27)  $8\sqrt{13}$  ft
- 28) 15 ft
- 29)  $5 + 5i$  and  $5 - 5i$
- 30)  $37\sqrt{2}$  feet
- 31)  $41\sqrt{2}$  feet
- 32)  $5 + 6i$  and  $5 - 6i$
- 33) 8 ft
- 34) 12 ft
- 35)  $10\sqrt{17}$  ft
- 36)  $6\sqrt{29}$  km
- 37)  $\sqrt{481}$  km
- 38)  $5 + 4i$  and  $5 - 4i$
- 39)  $5 + 3i$  and  $5 - 3i$
- 40)  $49\sqrt{2}$  feet
- 41)  $10\sqrt{37}$  ft
- 42) 12 ft
- 43)  $5 + 2i$  and  $5 - 2i$