Unit 1 – Square Roots & The Pythagorean Theorem

Grade 8 Mathematics
Exam Review

1. Which of these numbers is not a perfect square: 121, 2, 100, or 4?

2. Which of these numbers is a square number: 14, 49, 98, or 56?

3. Which of these numbers is a perfect square: 50, 20, 25, or 15?

4. What is the side length of a square with area 25 cm^2?

5. Which 2 consecutive square numbers is 54 between?

6. What is the area of a square with side length 10 units?

7. The areas of 4 squares are given: 127 cm^2, 116 cm^2, 121 cm^2, and 131 cm^2.
Which area is a perfect square?

8. Suzanne wants to put a fence around her square garden.
If the garden covers an area of 169 m^2, how many metres of fencing does she need?

9. I am a square number.
The sum of my digits is 13.
Which of these numbers might I be: 94, 81, 58, or 49?

10. Find the square of 3.

11. Find the square of 11.

12. Find a square root of 64.

13. Find a square root of 81.

14. Find $\sqrt{144}$.

15. Find 8^2.

16. Find $\sqrt{100}$.

17. Find the square of $\sqrt{49}$.

18. Find the number whose square root is 36.

19. Find the sum of $4^2 + 9^2$.

20. Simplify 7^2.

21. Find $\sqrt{100}$.

22. The side length of a square is $\sqrt{25}$ cm. Find its area.

23. The area of a square is 8 m^2. Find its side length.

24. The area of a square is 24 m^2. Find its side length.

25. The area A of a square is given.
Which side length is a whole number?
i) $A = 57$ m^2 ii) $A = 68$ m^2 iii) $A = 64$ m^2 iv) $A = 77$ m^2

26. Find $\sqrt{25 \times 25}$.

27. Between which 2 consecutive whole numbers is $\sqrt{111}$?

28. Which whole number is $\sqrt{8}$ closer to?

29. Which whole number is $\sqrt{151}$ closer to?

30. What is the greatest whole number less than $\sqrt{53}$?

31. What is the least whole number greater than $\sqrt{56}$?

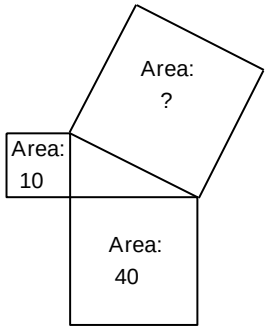
32. Simplify $\sqrt{15} + \sqrt{11}$ to the nearest whole number.

33. Estimate $\sqrt{48}$ to 1 decimal place.

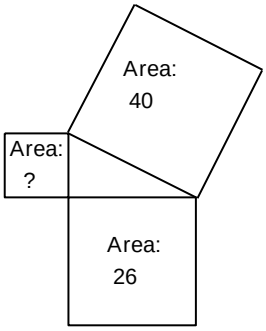
34. Find the approximate side length of a square with area 27 cm^2.
Give your answer to 1 decimal place.

35. The area of square P is 52 cm^2.
Square Q has an area equal to one quarter the area of square P.
Find the approximate side length of square Q.
Give your answer to 1 decimal place.

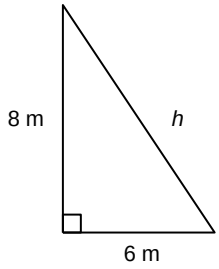
36. Find the area of the indicated square.



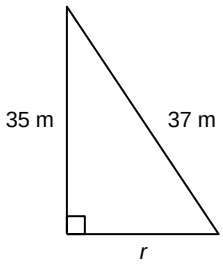
37. Find the area of the indicated square.



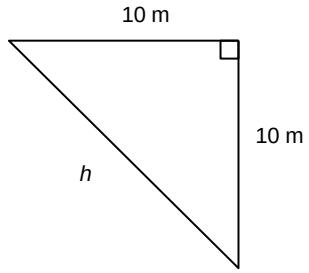
38. Find the length of the hypotenuse.



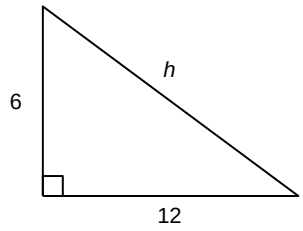
39. Find the length of the leg labelled *r*.



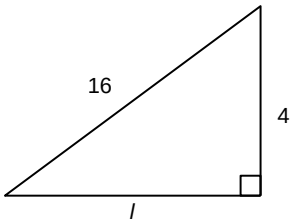
40. Find the length of the hypotenuse. Give your answer to 1 decimal place.



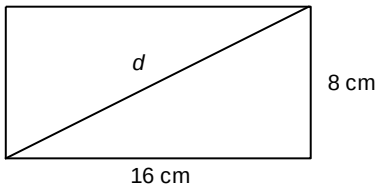
41. Find the length of the hypotenuse. Give your answer to 1 decimal place.



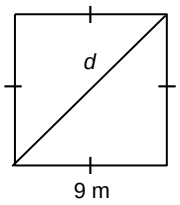
42. Find the length of the leg labelled *l*. Give your answer to 1 decimal place.



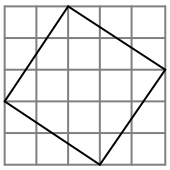
43. Find the length of the diagonal, *d*, in the rectangle. Give your answer to the nearest centimetre.



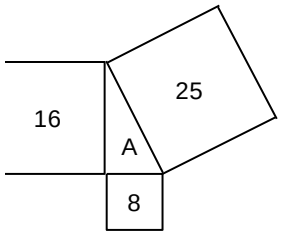
44. Find the length of the diagonal, *d*, in the square. Give your answer to 1 decimal place.

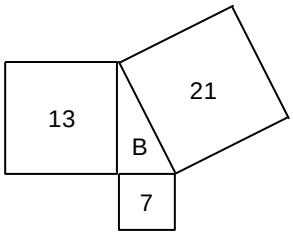


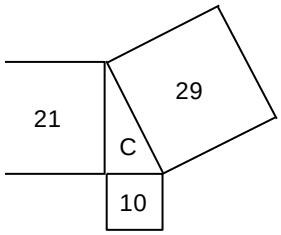
45. Use the Pythagorean Theorem to find the area of this square.

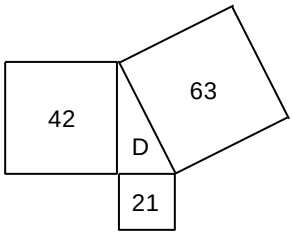


46. The area, in square centimetres, of the square on each side of a triangle is given.
Which triangle is a right triangle?

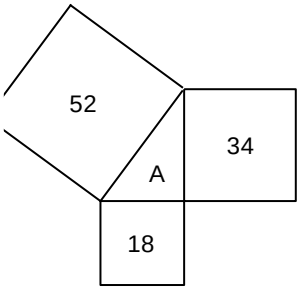


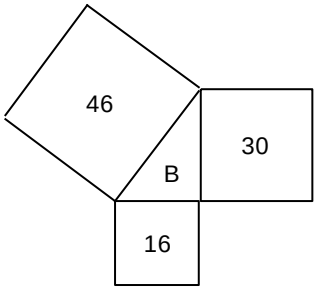


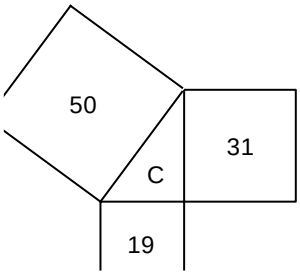


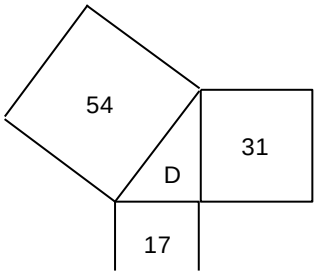


47. The area, in square centimetres, of the square on each side of a triangle is given.
Which triangle is NOT a right triangle?

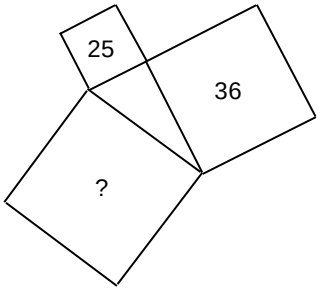




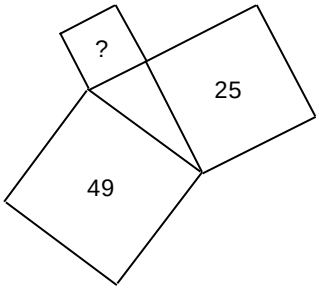




48. The areas, in square centimetres, of the smaller squares on the sides of a right triangle are given. Determine the area of the largest square.



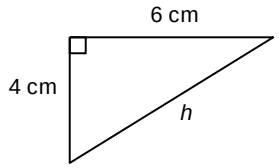
49. The areas, in square centimetres, of the largest square and one of the smaller squares on the sides of a right triangle are given. Determine the area of the third square.



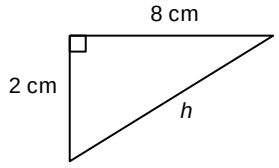
50. The legs of a right triangle measure 11 cm and 8 cm. What is the length of the hypotenuse?

51. The length of the hypotenuse and one leg of a right triangle are 9 cm and 4 cm respectively.
What is the length of the other leg?

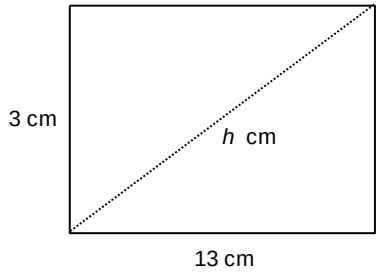
52. Find the length of the hypotenuse.
Give your answer to 1 decimal place.



53. Find the length of the hypotenuse.
Give your answer to 1 decimal place.



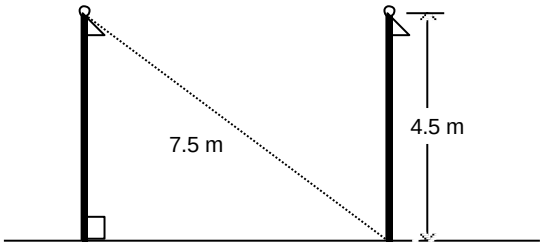
54. Jolene drew a diagonal on her rectangular book cover.
Find the length of the diagonal.
Give your answer to 1 decimal place.



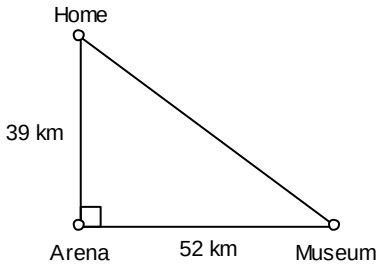
55. Ryan owns a plot of land in the shape of a right triangle.
The lengths of the 2 legs of the plot of land are 15 m and 19 m.
Find the length of the hypotenuse. Round your answer to the nearest tenth.

56. In a right triangle, the length of the hypotenuse is 18 m and the length of one of the legs is 15 m.
Find the length of the other leg. Round your answer to the nearest tenth.

57. This diagram shows 2 flag poles that are 4.5 m tall. The distance from the top of the left pole to the base of the right pole is 7.5 m. What is the distance between the 2 flag poles?



58. Gerry drew a diagram to compute the distance he will travel if he drives from his home to the arena and then from the arena to the museum.
What is the distance he will travel if he drives directly to the museum from his home?



Unit 1 - Answer Key

1. 2

2. 49

3. 25

4. 5 cm

5. 49 and 64

6. 100 square units

7. $A = 121$ cm^2

8. 52 m

9. 49

10. 9

11. 121

12. 8

13. 9

14. 12

15. 64

16. 10

17. 49

18. 1296

19. 97

20. 49

21. 10

22. 25 cm^2

23. $\sqrt{8}$ m

24. $\sqrt{24}$ m

25. iii

26. 25

27. 10 and 11

28. 3

29. 12

30. 7

31. 8

32. 7

33. 6.9

34. 5.2 cm

35. 3.6 cm

36. 50 square units

37. 14 square units

38. 10 m

39. 12 m

40. 14.1 m

41. 13.4

42. 15.5

43. 18 cm

44. 12.7 m

45. 13 square units

46. Triangle D

47. Triangle D

48. 61 cm^2

49. 24 cm^2

50. $\sqrt{185}$ cm

51. $\sqrt{65}$ cm

52. 7.2 cm

53. 8.2 cm

54. 13.3 cm

55. 24.2 m

56. 9.9 m

57. 6.0 m

58. 65 km