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1.

a) Determine the prime factorization of 36. Show your work.

6 × 6
2×3 × 2×3

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b) Is 36 a perfect square? Explain your thinking.

Yes, because an even number of each prime factor. ✓ (6×6)
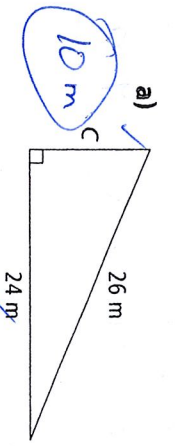
2 - 2⁵
2 - 3⁵

2×2⁵
2×3⁵

2. Write the perfect square immediately before and after the whole number, and then estimate the square root of the whole number to one decimal place. Check your estimates with a calculator.

	Perfect Square Before	Whole Number	Perfect Square After	Approximate Square Root
a)	25	27	36	5.2
b)	49	55	64	7.4
c)	100	105	121	10.2

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3. Use the relationship to determine the length of C in each triangle, to the nearest whole number. Show your work.
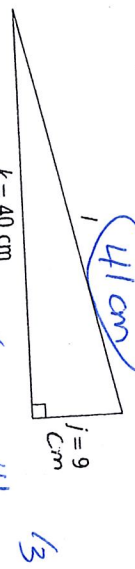
a) C, 26 m, 24 m

$26^2 - 24^2$
$676 - 576 = \sqrt{100}$ ✓ 10 m ✓

b) 15 cm, 39 cm, C

$39^2 - 15^2$ ✓
$1521 - 225 = \sqrt{1296}$ 36 cm ✓

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4. Determine the length of each hypotenuse. Show your work.

a) k = 40 cm, j = 9 cm

$40^2 + 9^2$ ✓
$= 1600 + 81 = \sqrt{1681}$ 41 cm ✓ 41

b) p = 12 m, q = 35 m
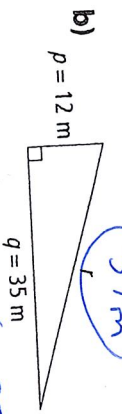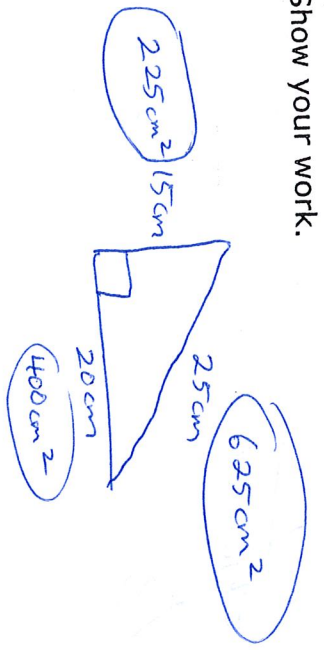
$12^2 + 35^2 =$ ✓ 37 m ✓
$144 + 1225 = \sqrt{1369}$ 37

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5. Use the Pythagorean relationship to find the unknown area of the square in the following diagram. Show your work.
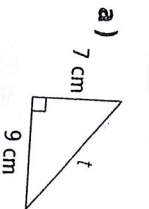
a) 25 cm², 61 cm², 36 cm²
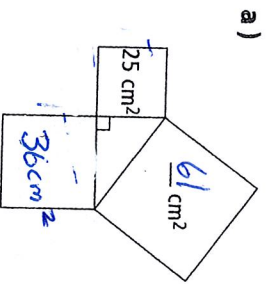
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6. The sides of a right triangle measure 15 cm, 20 cm, and 25 cm.

a) What is the area of each square? Show your work.

225 cm² 15 cm
400 cm² 20 cm
625 cm² 25 cm

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7. What is the area of the square on side t of each triangle? Show your work.

a)

7 cm, 9 cm, t

$$\sqrt{9^2 + 7^2}$$
$$\sqrt{81 + 49} = 130 \text{ cm}^2 \checkmark$$
/2

8. a) Complete the table using information provided in the diagram below.

289 cm²   64 cm²   225 cm²
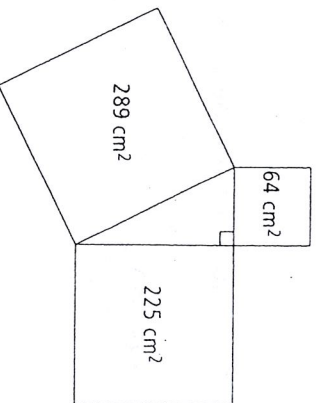
Area of Square	Side Length of Square
289 cm²	17 cm
64 cm²	8 cm
225 cm²	15 cm

/3

9. Aden decides to swim across a river that is 80 m wide. As he begins to swim the current carries him 60 m downstream. How far did he actually swim?
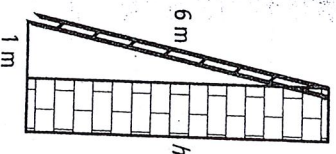

Starting Point, 80 m, 60 m
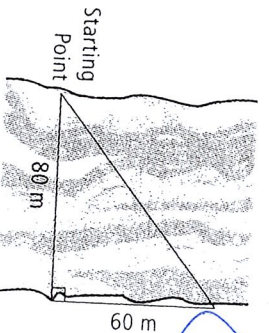
$$80^2 + 60^2$$
$$6400 + 3600 = \sqrt{10\,000} = 100$$

100 m

/3

10. The foot of a ladder is 1 m from a wall. If the ladder is 6 m long, how far up the wall does the ladder reach? Give the answer to the nearest tenth of a metre. Show your work.

6 m, 1 m, h

$$6^2 - 1^2 = h^2$$
$$36 - 1 = \sqrt{35}$$

5.9 m

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