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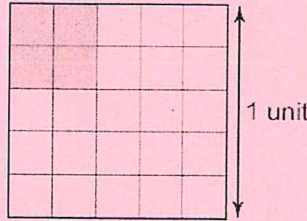
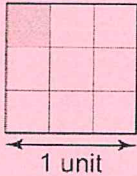
Key

Unit 2 Review

1. Use each diagram to determine the value of the square root.

a) $\sqrt{\frac{1}{9}} = \frac{1}{3}$

b) $\sqrt{0.16} = 0.4$



2. Which numbers below are perfect squares? How do you know?

a) $\frac{25}{121}$

b) 2.89

c) $\frac{2}{50}$

d) 0.004

3. Calculate the number whose square root is:

a) $\frac{5}{7} = \frac{25}{49}$

b) 1.6 = 2.56

c) 0.92 = 0.8464

d) $\frac{10}{9} = \frac{100}{81}$

4. Determine the value of each square root.

a) $\sqrt{\frac{225}{49}} = \frac{15}{7}$

b) $\sqrt{\frac{9}{25}} = \frac{3}{5}$

c) $\sqrt{\frac{400}{324}} = \frac{20}{18}$

d) $\sqrt{\frac{8}{98}} = \frac{2.8}{9.9}$

5. Determine the value of each square root.

a) $\sqrt{6.76} = 2.6$

b) $\sqrt{327.61} = 18.1$

c) $\sqrt{0.0025} = 0.05$

d) $\sqrt{0.0225} = 0.15$

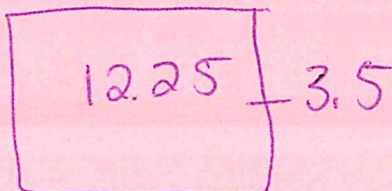
6. The area of a square garden is 12.25 m^2 .

a) Determine the perimeter of the garden.

b) The owner decides to put a gravel pathway around the garden.

This reduces the area of the garden by 4.96 m^2 .

What is the new side length of the garden?



a) 14 m

b) 2.7 m

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1. Which numbers below are perfect squares? How do you know?

a) ~~$\sqrt{\frac{16}{53}}$~~ b) $\sqrt{\frac{1}{25}}$ c) ~~$\sqrt{0.009}$~~ d) ~~$\sqrt{10.24}$~~

2. State the benchmark(s) you could use to approximate each square root.

a) $\sqrt{29.4}$ b) $\sqrt{0.41}$ c) $\sqrt{\frac{18}{37}}$ d) $\sqrt{\frac{14}{3}}$

Handwritten benchmarks: $25-36$, $0.4-0.9$, $\frac{4}{6}-\frac{5}{7}$, $\frac{3}{1}-\frac{4}{2}$

3. Use benchmarks to approximate each square root to the nearest tenth.

a) $\sqrt{11.6}$ b) $\sqrt{0.39}$ c) $\sqrt{\frac{21}{2}}$ d) $\sqrt{\frac{11}{52}}$

Handwritten approximations: $3-4$, $0.6-0.7$, $\frac{4}{1}-\frac{5}{2}$, $\frac{3}{7}-\frac{4}{8}$

Final approximations: 3.2 , 0.62 , $\frac{4}{2}$, $\frac{4}{7}$

4. Suppose the $\sqrt{\quad}$ key on your calculator is broken. Explain how you could use your calculator to estimate $\sqrt{58.6}$ to the nearest tenth.

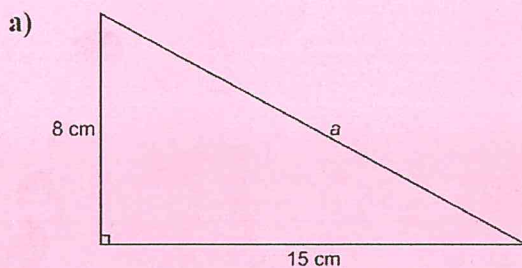
Handwritten: $7-8$

5. Use a calculator to approximate each square root to the nearest tenth.

a) $\sqrt{14.29}$ b) $\sqrt{\frac{15}{8}}$ c) $\sqrt{\frac{2}{19}}$ d) $\sqrt{0.7}$

Handwritten approximations: 3.8 , 1.4 , 0.3 , 0.8

6. In each triangle, determine the unknown length to the nearest tenth of a unit where necessary.

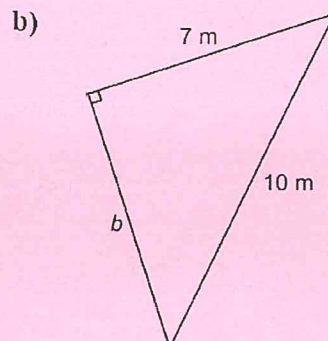


$$c^2 = 8^2 + 15^2$$

$$c^2 = 64 + 225$$

$$c^2 = 289$$

$$c = 17 \text{ cm}$$



$$b^2 = c^2 - a^2$$

$$b^2 = 10^2 - 7^2$$

$$b^2 = 100 - 49$$

$$b^2 = 51$$

$$b = 7.14 \text{ m}$$

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1. Find the area of a square with each side length.

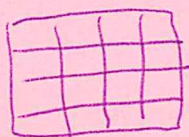
a) 7 units

$$49u^2$$

b) 11 units

$$121u^2$$

2. Show that 16 is a square number.
Use a diagram, symbols, and words.



3. Which of these numbers is a perfect square?

How do you know?

~~a) 14~~

~~b) 60~~

c) 36

4. These numbers are not square numbers.

Which two consecutive square numbers is each number between?

a) 7

b) 30

c) 50

d) 90

$$4-9$$

$$25-36$$

$$49-64$$

$$81-100$$

5. I am a two-digit square number. The sum of my digits is 13.
What square number am I?

$$49$$

6. A square patio has area 225 m^2 .

a) Find the dimensions of the patio.

$$15 \text{ m} \times 15 \text{ m}$$

b) The owner wants to put lights around the patio.

How many metres of lighting is needed?

$$60 \text{ m}$$

c) Each string of lights is 25 m long.

How many strings of lights are needed?

$$3$$

1. Simplify.

a) 5^2 25

b) $\sqrt{196}$ 13

c) 8^2 64

d) $\sqrt{225}$ 15

e) 1^2 1

f) $\sqrt{49}$ 7

g) 9^2 81

h) $\sqrt{10\,000}$ 100

2. The area A of a square is given. Find its side length.

Which side lengths are whole numbers?

a) $A = 9 \text{ cm}^2$

b) $A = 56 \text{ m}^2$

c) $A = 81 \text{ cm}^2$

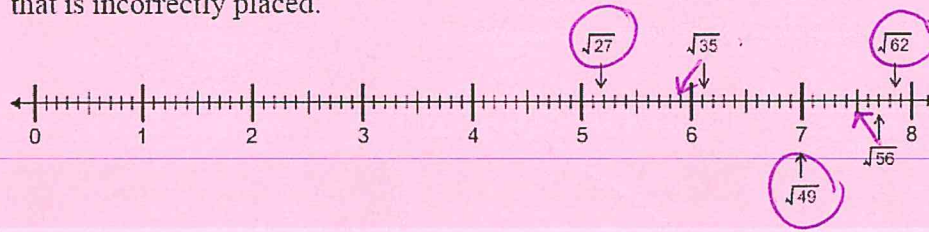
e) $A = 16 \text{ m}^2$

f) $A = 42 \text{ cm}^2$

g) $A = 72 \text{ m}^2$

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- Use the number line below.
 - Which placements are good estimates of the square roots? Explain your reasoning.
 - Use the number line to estimate the value of each square root that is incorrectly placed.

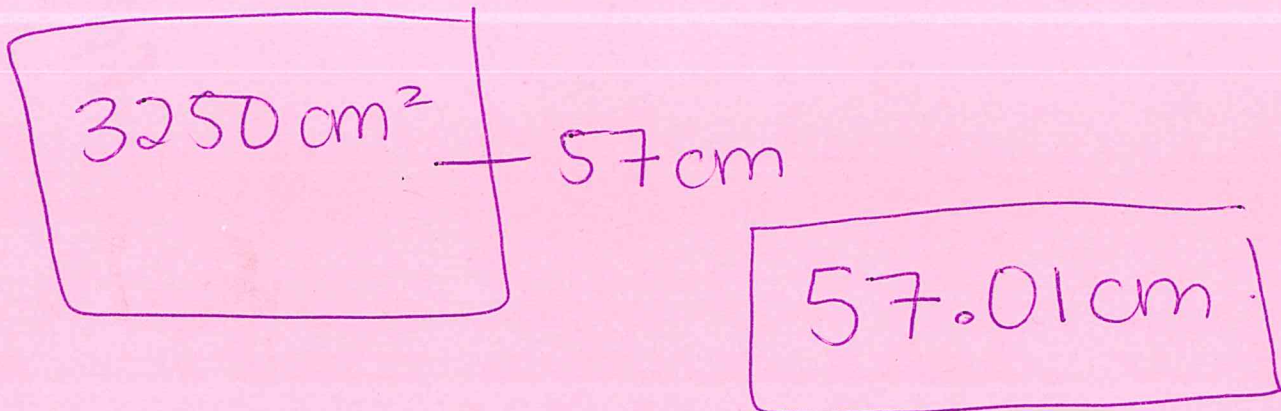


- Which two consecutive numbers is each square root between? How do you know?
 - Use guess and check to estimate the value of each square root to two decimal places.
 - $\sqrt{15}$ 9-16 (3.9)
 - $\sqrt{72}$ 7-8 (7.6)
 - $\sqrt{110}$ 100-121 (10.5)
 - $\sqrt{41}$ 36-49 (6.4)

- Is each statement true or false? Explain.

- ~~a)~~ $\sqrt{19}$ is between 18 and 20.
- b) $\sqrt{101}$ is greater than 10.
- ~~c)~~ $\sqrt{5+10}$ is less than $\sqrt{5} + \sqrt{10}$. 3.9 vs 5.4
- d) $\sqrt{3} \times \sqrt{8}$ is less than $\sqrt{36}$. 4.8 vs 6.
- ~~e)~~ $\sqrt{12} + \sqrt{10}$ is less than $\sqrt{32} - \sqrt{10}$. 6.7 vs 2.5.
- ~~f)~~ $\sqrt{1} + \sqrt{1} + \sqrt{1}$ is equal to $\sqrt{3}$.

- Chess is played on a square board.
A particular board has an area of about 3250 cm^2 .
What are the approximate dimensions of the board to two decimal places?



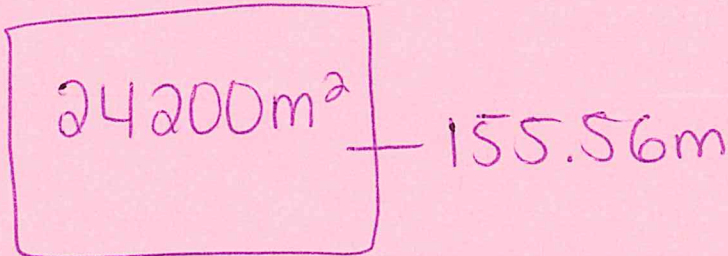
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5. A farmer has 600 m of fencing.
He wants to enclose a square field of area $24\,200\text{ m}^2$.

What are the approximate dimensions of the field?

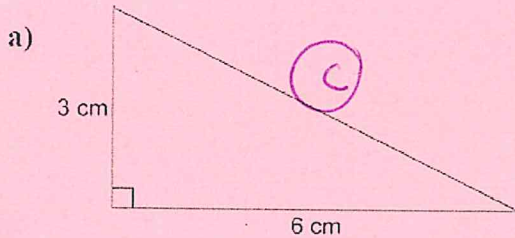
Give your answer to one decimal place.

Does the farmer have enough fencing to enclose the field? Explain.



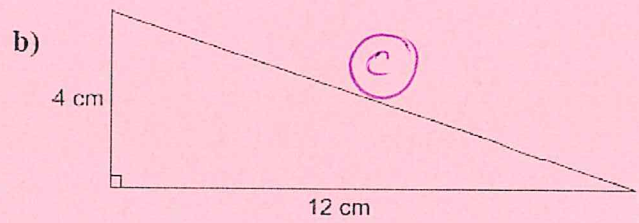
$$\begin{aligned} &\rightarrow 155.6 \times 4 \\ &= 622.25\text{ m} \\ &\text{NO} \end{aligned}$$

1. Find the length of the unmarked side in each right triangle.
Give your answers to one decimal place.



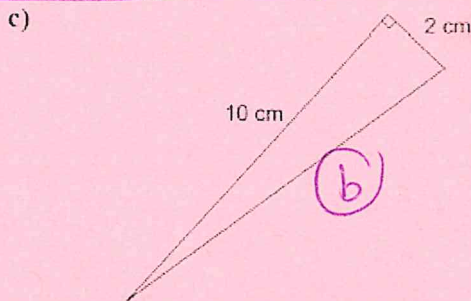
$$\begin{aligned} 3^2 + 6^2 &= c^2 \\ 9 + 36 &= c^2 \\ 45 &= c^2 \end{aligned}$$

$$\boxed{6.71\text{ cm} = c}$$



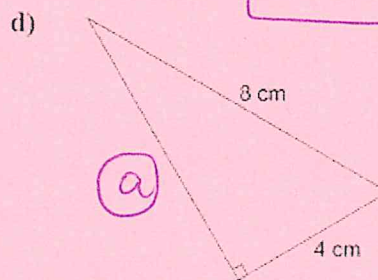
$$\begin{aligned} 4^2 + 12^2 &= c^2 \\ 16 + 144 &= c^2 \\ 160 &= c^2 \end{aligned}$$

$$\boxed{12.65\text{ cm} = c}$$



$$\begin{aligned} 10^2 - 2^2 &= b^2 \\ 100 - 4 &= b^2 \\ 96 &= b^2 \end{aligned}$$

$$\boxed{9.8\text{ cm} = b}$$



$$\begin{aligned} 8^2 - 4^2 &= a^2 \\ 64 - 16 &= a^2 \\ 48 &= a^2 \end{aligned}$$

$$\boxed{6.93\text{ cm} = a}$$

