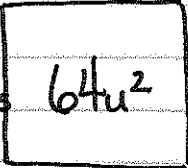
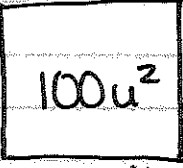
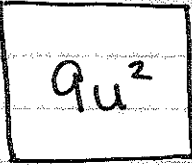



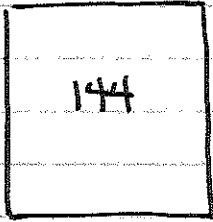
# Squares and Square Roots: ANSWERS

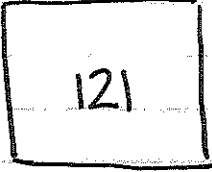
1. a)  $64 \text{ units}^2$    $8u \times 8u = 64u^2$   
8 units  $64u^2$  8 units

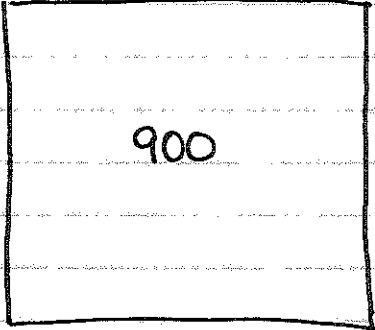
b)  $100 \text{ units}^2$    $10u \times 10u = 100u^2$   
10 units  $100u^2$  10 units

c)  $9 \text{ units}^2$    $3u \times 3u = 9u^2$   
3 units  $9u^2$  3 units

2. a) 

b)   $12 \times 12 = 144$

c) 

d)   $30 \times 30 = 900$

3. a)  $10\text{m}$      $\sqrt{100\text{m}^2} = 10\text{m}$  ( $10\text{m} \times 10\text{m} = 100\text{m}^2$ )

b)  $8\text{cm}$      $\sqrt{64\text{cm}^2} = 8\text{cm}$  ( $8\text{cm} \times 8\text{cm} = 64\text{cm}^2$ )

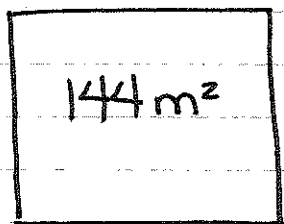
c)  $9\text{m}$      $\sqrt{81\text{m}^2} = 9\text{m}$  ( $9\text{m} \times 9\text{m} = 81\text{m}^2$ )

d)  $20\text{cm}$      $\sqrt{400\text{cm}^2} = 20\text{cm}$  ( $20\text{cm} \times 20\text{cm} = 400\text{cm}^2$ )

4. a)  $16$  ( $4 \times 4 = 16$ )      b)  $36$  ( $6 \times 6 = 36$ )

c)  $4$  ( $2 \times 2 = 4$ )      d)  $225$  ( $15 \times 15 = 225$ )

5. a)



$\sqrt{144\text{m}^2} = 12\text{m}$

The length of the side of the room is  $12\text{m}$ .

b) 4 sides that are  $12\text{m}$  each. (perimetre)

$12\text{m} + 12\text{m} + 12\text{m} + 12\text{m} = 48\text{m}$

or

$12\text{m} \times 4\text{ sides} = 48\text{m}$

She/he will need  $48\text{m}$  of baseboard to go around the room

6. a)  $8^2 = 8 \times 8 = 64$       b)  $3^2 = 3 \times 3 = 9$

c)  $1^2 = 1 \times 1 = 1$       d)  $7^2 = 7 \times 7 = 49$

7. a)  $\sqrt{25} = 5$  ( $5 \times 5 = 25$ )      b)  $\sqrt{81} = 9$  ( $9 \times 9 = 81$ )

c)  $\sqrt{64} = 8$  ( $8 \times 8 = 64$ )      d)  $\sqrt{169} = 13$  ( $13 \times 13 = 169$ )

8. a)  $\sqrt{16} = 4$  ( $4 \times 4 = 16$ )    b)  $\sqrt{121} = 11$  ( $11 \times 11 = 121$ )

c)  $\sqrt{36} = 6$  ( $6 \times 6 = 36$ )    d)  $\sqrt{1} = 1$  ( $1 \times 1 = 1$ )

9. a)  $225 \Rightarrow 1, 3, 5, 9, 15, 25, 45, 75, 225$   
Perfect Square (odd number of factors  $15 \times 15$ )

b)  $500 \Rightarrow 1, 2, 4, 5, 10, 20, 25, 50, 100, 125, 250, 500$   
Not (even number of factors)

c)  $324 \Rightarrow 1, 2, 3, 4, 6, 9, 12, 18, 27, 36, 54, 81,$   
 $108, 162, 324$   
Perfect Square (odd number of factors  $18 \times 18$ )

d)  $160 \Rightarrow 1, 2, 4, 5, 8, 10, 16, 20, 32, 40, 80, 160$   
Not (even number of factors)

10. a)  $\sqrt{3^2} = \sqrt{9} = 3$     b)  $\sqrt{6^2} = \sqrt{36} = 6$

c)  $\sqrt{10^2} = \sqrt{100} = 10$     d)  $\sqrt{117^2} = \sqrt{3689} = 117$

11. a)  $(\sqrt{4})^2 = (\sqrt{4} \times \sqrt{4}) = (2 \times 2) = 4$

b)  $(\sqrt{121})^2 = (\sqrt{121} \times \sqrt{121}) = (11 \times 11) = 121$

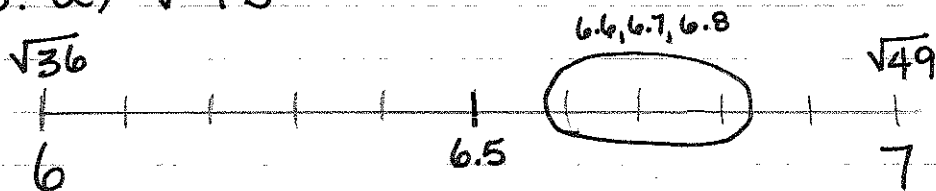
c)  $(\sqrt{225})^2 = (\sqrt{225} \times \sqrt{225}) = (15 \times 15) = 225$

d)  $(\sqrt{676})^2 = (\sqrt{676} \times \sqrt{676}) = (26 \times 26) = 676$

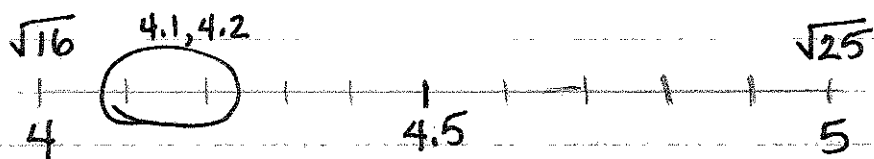
12. a)  $\sqrt{9}, 4, \sqrt{36}, 36$  b)  $\sqrt{100}, 15, 19, \sqrt{400}$   
(3, 4, 6, 36) (10, 15, 19, 20)

c)  $\sqrt{81}, \sqrt{100}, 11, 81$  d)  $\sqrt{36}, \sqrt{49}, \sqrt{64}, 9$   
(9, 10, 11, 81) (6, 7, 8, 9)

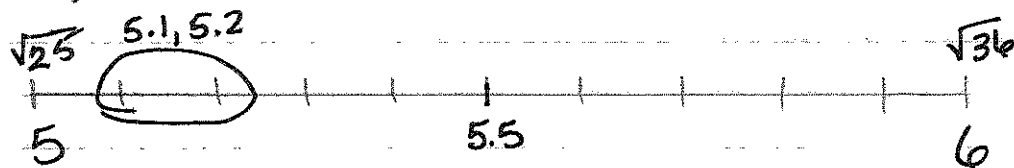
13. a)  $\sqrt{45}$



b)  $\sqrt{17}$



c)  $\sqrt{27}$

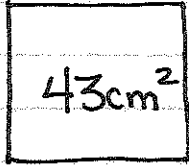


14. a)  $\sqrt{131} = 11.45$   $\sqrt{131}$  is closer to 11 than 12.

b)  $\sqrt{94} = 9.70$   $\sqrt{94}$  is closer to 10 than 9.

c)  $\sqrt{55} = 7.42$   $\sqrt{55}$  is closer to 7 than 8.

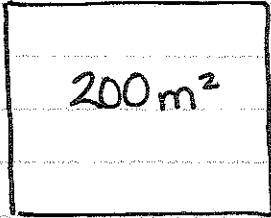
15. a)



$$\sqrt{43\text{cm}^2} = 6.5574385243\text{cm}$$

$$\approx 6.6\text{cm}$$

b)



$$\sqrt{200\text{m}^2} = 14.1421356237\text{m}$$

$$\approx 14.1\text{m}$$

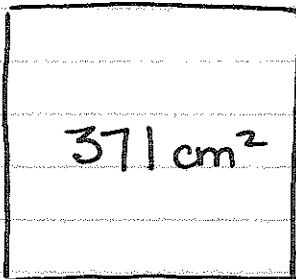
c)



$$\sqrt{11\text{mm}^2} = 3.31662479035\text{mm}$$

$$\approx 3.3\text{mm}$$

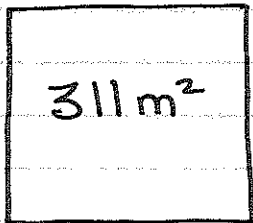
d)



$$\sqrt{371\text{cm}^2} = 19.2613602842\text{cm}$$

$$\approx 19.3\text{cm}$$

16. a)

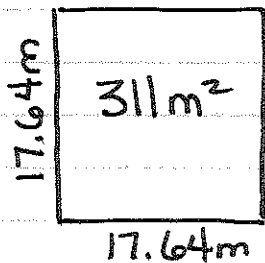


$$\sqrt{311\text{m}^2} = 17.6351920885\text{m}$$

$$\approx 17.64\text{m}$$

The side lengths of Mallory's garden is  $17.64\text{m}$

b)



Perimetre

$$17.64\text{m} + 17.64\text{m} + 17.64\text{m} + 17.64\text{m} \\ = 70.56\text{m}$$

Mallory will need  $70.56$  metres.