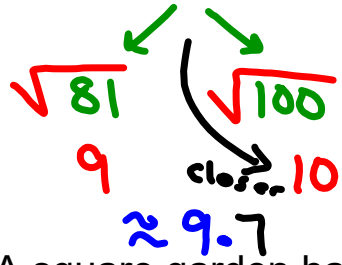
Warm Up

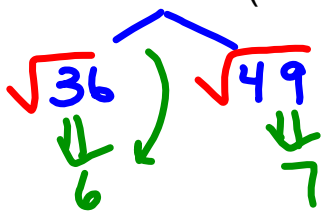
Grade 8

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225

1) Estimate $\sqrt{96}$ (Show Work)



2) Estimate $\sqrt{37}$ (Show Work)



6.1

3)A square garden has area 97 m^2.

→ find side = √Area

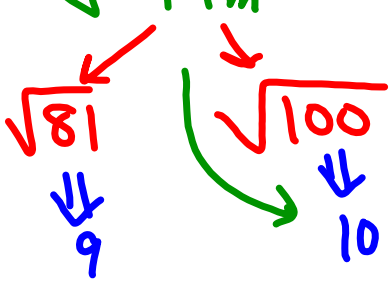
a) What are the approximate dimensions of the garden to two decimal places?

b) About how much fencing would be needed to go around the garden?

a)

Side = √Area

= √97 m^2



≈ 9.87 m

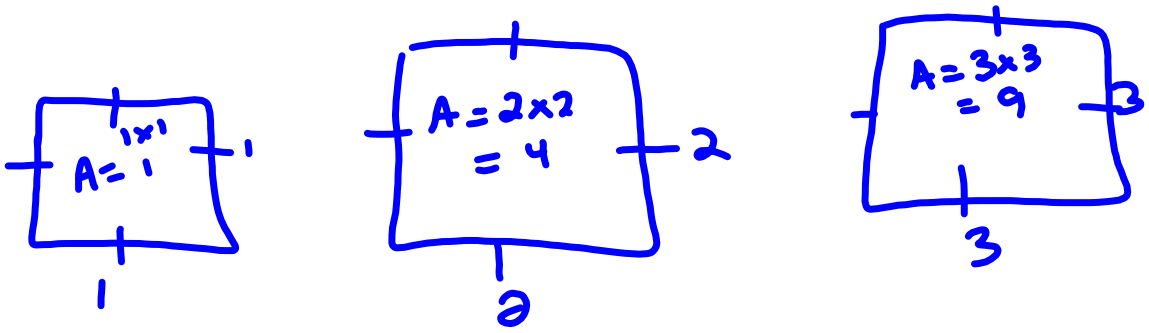
The dimension is 9.87m for each side.

b) Perimeter

= 9.87 × 4

≈ 39.48 m

Total fencing needed is 39.48m.



Perfect Square #

1 $\Leftarrow$ $1^2 = 1 \times 1$

4 $\Leftarrow$ $2^2 = 2 \times 2$

9 $3^2 = 3 \times 3$

$\sqrt{\text{perfect square \#}} = \text{Side}$

Homework Solutions

Pg 25

4a) $\sqrt{15 \times 15}$
15

b) $\sqrt{22 \times 22}$
22

c) $\sqrt{3 \times 3}$
3

d) $\sqrt{1 \times 1}$
1

5 a) $\sqrt{5}$

$\sqrt{4}$ $\sqrt{9}$
2 3

Est $\sqrt{5} \approx$ 2.1 or 2.2

b) $\sqrt{11}$

$\sqrt{9}$ $\sqrt{16}$
3 4

Est $\sqrt{11} \approx 3.1$ or 3.2

c) $\sqrt{57}$

$\sqrt{49}$ $\sqrt{64}$
7 8

Est $\sqrt{57} \approx 7.5$

d) $\sqrt{38}$

$\sqrt{36}$ $\sqrt{49}$
6 7

$\sqrt{38} \approx 6.1$

e) $\sqrt{171}$

$\sqrt{169}$ $\sqrt{196}$
13 14

Est $\sqrt{171} \approx 13.1$

f) $\sqrt{115}$

$\sqrt{100}$ $\sqrt{121}$
10 11

$\sqrt{115} \approx 10.7$

#5) a) $\sqrt{5}$

$\sqrt{4}$ $\sqrt{9}$

= 2 = 3

b) $\sqrt{11}$

$\sqrt{9}$ $\sqrt{16}$

= 3 = 4

c) $\sqrt{57}$

$\sqrt{49}$ $\sqrt{64}$

= 7 = 8

d) $\sqrt{38}$

$\sqrt{36}$ $\sqrt{49}$

= 6 = 7

e) $\sqrt{171}$

$\sqrt{121}$ $\sqrt{144}$

= 11 = 12

e) $\sqrt{115}$

$\sqrt{100}$ $\sqrt{121}$

= 10 = 11

#7) $\sqrt{23}$

$\sqrt{16}$ $\sqrt{25}$

= 4 = 5

closer to 5

so 4.7

✗

$\sqrt{30}$

$\sqrt{25}$ $\sqrt{36}$

= 5 = 6

closer to 5

so 5.4

✓

$\sqrt{64} = 8$ ✓

$\sqrt{72}$

$\sqrt{64}$ $\sqrt{81}$

= 8 = 9

closer to 8

so 8.4

✓

Class/Homework

Hi

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8 (a,b,c,d)

#9 (a,b,c,d)

#11 (a,b,c)

#12(a,d)

#13(a,d)

#14(a,d)

#15(a,b) Show work

#16(a,b)

#21

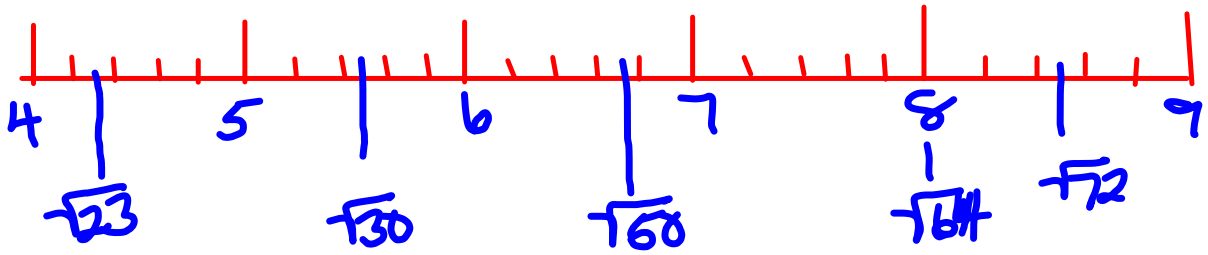
#23 (a,b,c)

Homework Solutions

b. $\sqrt{4} = 2$ $\sqrt{9} = 3$

$\sqrt{7} \approx 2.7$

7.



a) The estimates that are good are

$\sqrt{30}$ in the middle between $\sqrt{25}$ and $\sqrt{36}$

$\sqrt{64}$ is exactly 8

$\sqrt{72}$ is in the middle between $\sqrt{64}$ and $\sqrt{81}$

b) $\sqrt{23}$ should be closer to 5 than 4

$\sqrt{50}$ should be greater than 7

Homework

Solutions

8 a) $\sqrt{11}$

$\sqrt{9}$ $\sqrt{16}$

3 4

$\sqrt{11} \approx 3.2$

Perfect Squares	
1	4
9	16
25	36
49	64
81	100
121	144
169	196
225	

b) $\sqrt{40}$

$\sqrt{36}$ $\sqrt{49}$

6 7

$\sqrt{40} \approx 6.3$

c) $\sqrt{30}$

$\sqrt{25}$ $\sqrt{36}$

5 6

$\sqrt{30} \approx 5.5$

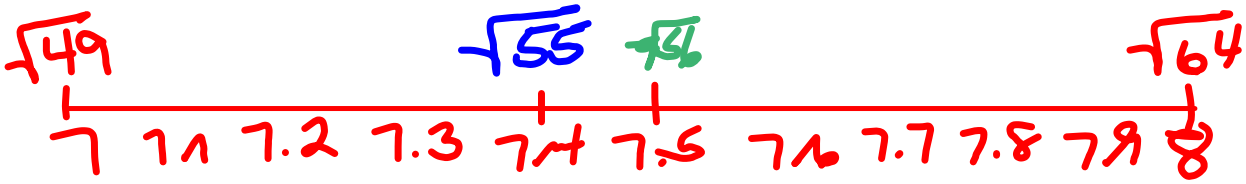
d) $\sqrt{55}$

$\sqrt{49}$ $\sqrt{64}$

7 8

$\sqrt{55} \approx 7.4$

Middle between 49 and 64 $\approx$ 56



Homework
Solutions

9. 7, $\sqrt{14}$

$\sqrt{16} = 4$, so $\sqrt{14} < 7$

b) 8, $\sqrt{60}$

$8^2 = 64$, so $\sqrt{60} < 8$

c) 11, $\sqrt{121}$

$11^2 = 121$, so $\sqrt{121} = 11$

d) 12, $\sqrt{150}$

$\sqrt{144} = 12$, so $\sqrt{150} > 12$

10 a) $\sqrt{58}$

$\sqrt{49}$ $\sqrt{64}$

7 8

$\sqrt{58} \approx 7.8$

b) $\sqrt{70}$

$\sqrt{64}$ $\sqrt{81}$

8 9

$\sqrt{70} \approx 8.3$

c) $\sqrt{90}$

$\sqrt{81}$ $\sqrt{100}$

9 10

$\sqrt{90} \approx 9.5$

d) $\sqrt{161}$

$\sqrt{144}$ $\sqrt{169}$

12 13

$\sqrt{151} \approx 12.2$

Perfect Squares	
1	4
9	16
25	36
49	64
81	100
121	144
169	196
225	

Homework Solutions

11. a) $\sqrt{17}$ is between 16 and 18

False,

$\sqrt{17}$ is between 4 ($\sqrt{16}$) and 5 ($\sqrt{25}$)

b) $\sqrt{5}+\sqrt{5}=\sqrt{10}$

$\sqrt{5} \approx 2.2$ $\quad \sqrt{4}=2$, $\sqrt{9}=3$

$\sqrt{10} \approx 3.2$ $\quad \sqrt{9}=3$, $\sqrt{16}=4$

Is $2.2+2.2=3.2$, no

so False $\sqrt{5}+\sqrt{5}$ does not equal $\sqrt{10}$

c) $\sqrt{131}$ is between 11 and 12

True

$\sqrt{121}=11$ and $\sqrt{144}=12$

and 131 is between 121 and 144