Squares and Square Roots

Name: _Key._

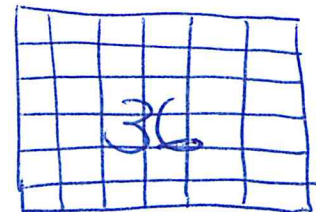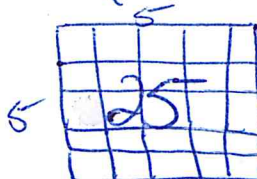a) What is the square number that goes with the diagram?

6x6 = 36

b) Prove that 32 is not a perfect square number.

There is no square that can be made with whole numbers to make an area of 32.
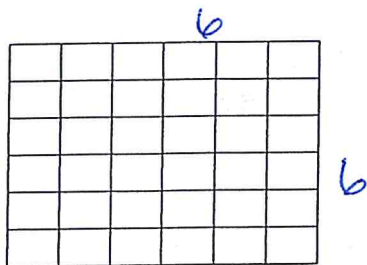
Complete the following table:

4^2	4 x 4	16
5^2	~~2~~ 5x5	25
7^2	7 x 7	49
11^2	11 x 11	121
3^2	3x 3	9
1^2	1 x 1	1
10^2	10 x 10	100

What are the square roots of the following:

a) $\sqrt{81} =$ 9   b) $\sqrt{16} =$ 4   c) $\sqrt{36} =$ 6

d) $\sqrt{64} =$ 8   e) $\sqrt{169} =$ 13   f) $\sqrt{400} =$ 20

Match each number in column 1 to the number that is equal to it in column 2.

a) $\sqrt{9}$ i) 9
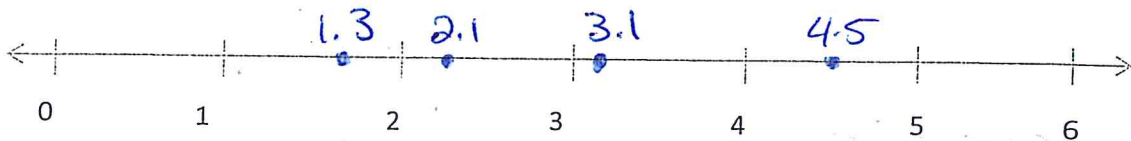b) 81   ii) 9^2
c) 3^2 iii) $\sqrt{81}$
d) 9   iv) 3

a — iv
b — ii
c — i
d — iii

Use the number line to complete each statement with whole numbers.

ie) To solve for √10:
√10 lies between √9 and √16 so √10 must have a value between 3 and 4, but closer to 3.

$$1.3 \quad 2.1 \quad\quad 3.1 \quad\quad\quad 4.5$$

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←—+————+——+——+——+————+——+——+—→
   0    1    2    3    4    5    6
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√5 lies between $\sqrt{4}$ and $\sqrt{9}$ $\sqrt{5} \approx 2.1$
√20 lies between $\sqrt{16}$ and $\sqrt{25}$ $\sqrt{20} \approx 4.5$
√10 lies between $\sqrt{9}$ and $\sqrt{16}$ $\sqrt{10} \approx 3.1$
√2 lies between $\sqrt{1}$ and $\sqrt{4}$ $\sqrt{2} \approx 1.3$

Estimate the following square roots:

g) √20 = 4.5

h) √17 = 4.1

i) √40 = 6.3

j) √50 = 7.1

k) √2 = 1.3

l) √150 = 12.2

m) √135 = 11.6

n) √108 = 10.4

o) √167 = 12.9

p) √188 = 13.7

q) √57 = 7.5

r) √99 = 9.9

If you multiply a perfect square by a different perfect square, is the answer also a perfect square? Give examples to explain.

yes

$$4 \times 9 = 36 \qquad 4 \times 25 = 100 \qquad 100 \times 4 = 400$$
$$9 \times 25 = 225 \qquad 4 \times 16 = 64$$