

Concept: Square Root

Name: _____

Warm Up

1. Multiply the following:

(a) $2^2 =$

(b) $3^2 =$

(c) $4^2 =$

(d) $5^2 =$

(e) $6^2 =$

(f) $7^2 =$

COMPUTER COMPONENT

Instructions: In  follow the **Content Menu** path:

Exponents > Square Root



Work through all Sub Lessons of the following Lessons **in order**:

- *Squaring Numbers*
- *Square Roots*
- *Radical Signs*
- *Square Roots of Negative Numbers*
- *Examples Questions*
- *Estimating Square Roots*
- *Estimating Square Roots on a Number Line*

Additional Required Materials: *Scientific calculator*



As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

NOTES

Squaring Numbers

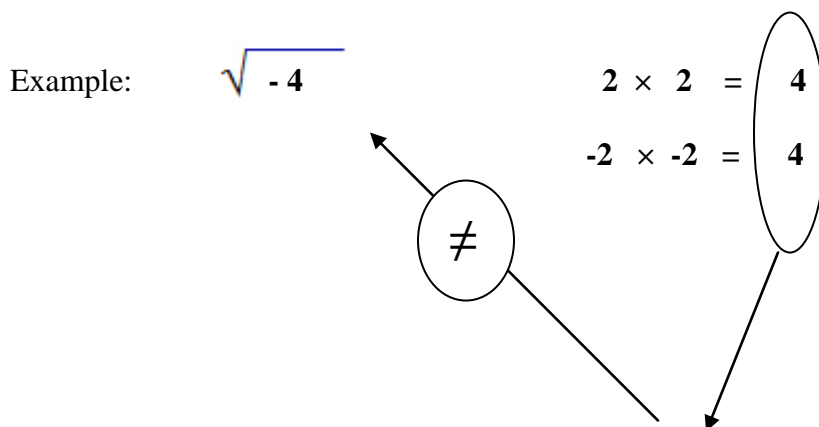
➤ A number is squared when it is _____ by _____.

Fill in the following examples of squares.

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

$$2^2 = \underline{\quad} \times \underline{\quad} = \underline{\quad}$$

A number cannot be _____ by _____ to give a _____ product.



The product is always a _____ number.

We _____ take the square root of a _____ number.

Remember:

- Operations _____ the _____ sign are done _____.

Example:

$$\sqrt{4 + 10} = \sqrt{\quad}$$

$$= \underline{\quad}$$

- A square root can be written as a _____ of two radicals.

Example:

(a) $\sqrt{6} = \sqrt{2 \times 3}$

$$= \sqrt{\quad} \sqrt{\quad}$$

$$\begin{aligned}
 \text{(b) } \sqrt{9} &= \sqrt{3 \times 3} \\
 &= \left(\sqrt{\quad} \right)^{\text{---}}
 \end{aligned}$$

When **estimating** square roots.

- First, find an easier square root that is close, but a little _____ than it.
- Then find an easier square root that is just a little _____ than it.

Example:

$$\text{(a) } \sqrt{28} \text{ is } \underline{\hspace{2cm}} \sqrt{\hspace{1cm}} \text{ and } \sqrt{\hspace{1cm}}$$

OFF COMPUTER EXERCISES

1. Find the square roots of each number.

(a) 81

(b) 64

(c) 1

(d) 0

(e) 100

(f) 144

(g) 9

(h) 225

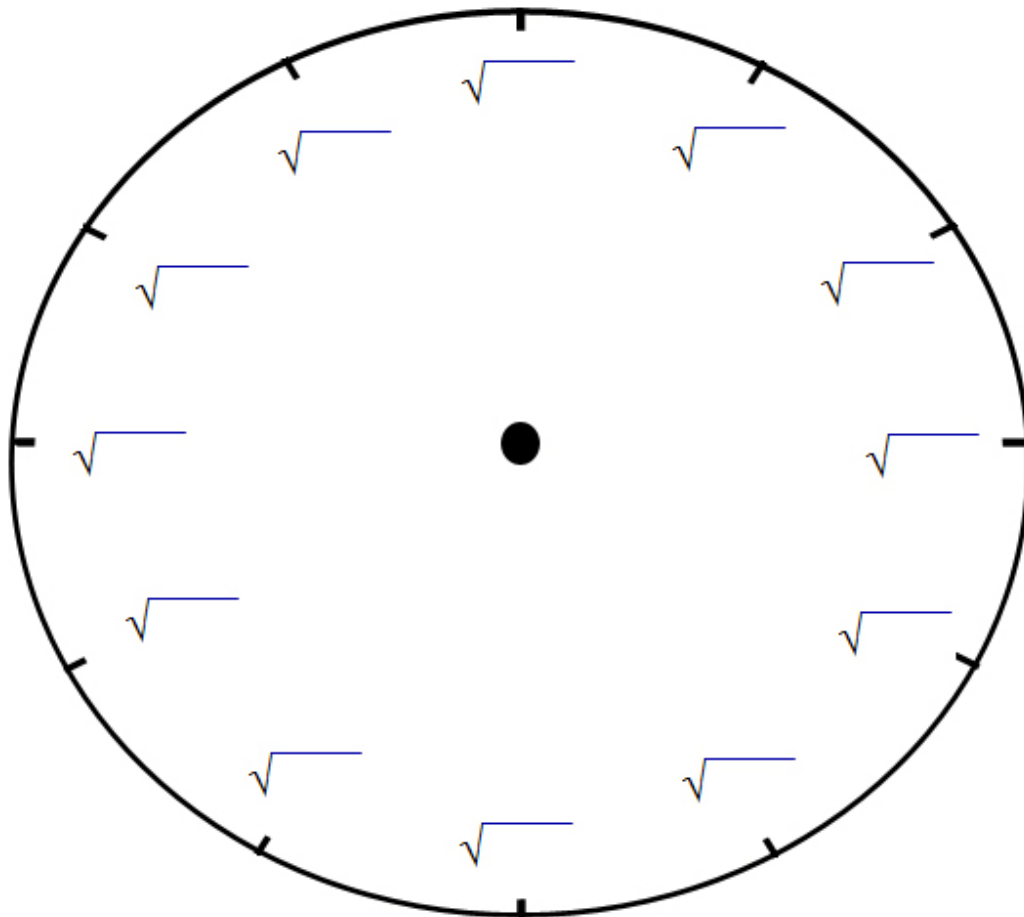
2. Which square roots are the following between?

(a) $\sqrt{72}$

(b) $\sqrt{38}$

(c) $\sqrt{109}$

3. Fill in the missing numbers on the radical clock face:



4. Evaluate.

(a) $\sqrt{36}$

(b) $\sqrt{82} - \sqrt{25}$

(c) $\sqrt{225}$

(d) $\sqrt{81} - \sqrt{144}$

(e) $\sqrt{9} + \sqrt{16}$

(f) $\sqrt{9+16}$

(g) $\sqrt{9 \times 25}$

(h) $\sqrt{9} \times \sqrt{25}$

(i) $\sqrt{\frac{100}{16}}$

(j) $\sqrt{\frac{4}{9}}$

(k) $\sqrt{(\sqrt{81})}$

(l) $4 + \sqrt{3^3 + 3^2}$

5. Evaluate each expression if $x = 3$, $y = -4$ and $z = -7$.

(a) $-\sqrt{3x}$

(b) $\sqrt{15x - y}$

(c) $\sqrt{y^2 + 3x}$

(d) $\sqrt{x^2 - z}$

6. Answer the following and show all your steps.

(a) If the area of a square is 289 square mm, calculate the dimensions.

(b) If the area of a square is 0.0081 square cm, calculate the dimensions.

(c) A rectangle has dimensions of 4 cm by 16 cm and is equal to a second figure which is a square. *Find the dimensions of the square.*

Challenge

7. Calculate the square root of $(4^3 + 4^3 + 4^3 + 4^3)$.

8. Find a number x to make this statement true:

$$4 + (x \div 4^2) - 2 \times 3^2 = 18$$