INDICES, SQUARE ROOTS, CUBE ROOTS

INDICES

A small number that is raised is called the **exponent** or **index**.

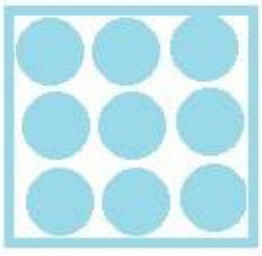
$$5^4 = 5 \times 5 \times 5 \times 5$$

The other other number is the **base**. The index tell how many times the base is multiplied by itself.

SQUARE ROOTS

A square number is a result of multiplying two numbers that are the same. 4 is a square number of 2. (2 x 2 = 4)

$$2^2 \text{ or } 2 \times 2 = 4$$



$$3^2 \text{ or } 3 \times 3 = 9$$

We find the square root of all square numbers. Therefore, the square root of a **number** is that number when multiplied by itself give back the **number**.

The symbol $\sqrt{}$ is used to indicate the "square root of"

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

CUBE ROOTS

The cube root of a number is the number when multiplied by itself three times.

$\sqrt[3]{8} = 2$ $\sqrt[3]{18} = 3$

Practice exercises.

Calculate the index form. The first is done for you.

a) $2^2 = 2 \times 2 =$ ☐

b) $2^3 =$ ☐ $=$ ☐

c) $3^2 =$ ☐ $=$ ☐

d) $5^3 =$ ☐ $=$ ☐

e) $2^3 \times 3^3 =$ ☐ $\times$ ☐ $=$ ☐ $\times$ ☐ $=$ ☐

f) $6^2 \times 7^2 =$ ☐ x ☐ = ☐ x ☐ = ☐

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g) $9^1 + 3^2 =$ ☐ + ☐ = ☐ + ☐ = ☐

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h) $10^3 - 4^2 =$ ☐ – ☐ = ☐

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i) ☐^{3} + ☐^{2} = ☐ + ☐ = 8 + 25= ☐

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j) ☐^{2} – ☐^{3} = ☐ – ☐ = 100 – ☐ = 36

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2. QUESTION

Calculate the square root.

a) $\sqrt{100} =$

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b) $\sqrt{16} =$ ☐

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c) $\sqrt{64} =$ ☐

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d) $\sqrt{2500} = \sqrt{25} \times \sqrt{100} =$ ☐ × ☐ = ☐

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c) $\sqrt{4900} =$ √☐ ×√☐ = ☐ × ☐ = ☐

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d) $\sqrt{900} =$ √☐ × √☐ = ☐ × ☐ = ☐

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e) $\sqrt{625} = \sqrt{\square}^4 = \square^2 = \square$
Note:

$$
\begin{array}{r|l}
5 & 625 \\
5 & 125 \\
5 & 25 \\
5 & 5 \\
 & 1
\end{array}
$$

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f) $\sqrt{225} = \sqrt{\square} \times \sqrt{\square} = \square \times \square = \square$
Note:

$$
\begin{array}{r|l}
5 & 225 \\
5 & 45 \\
3 & 9 \\
3 & 3 \\
 & 1
\end{array}
$$

g)$\sqrt{1024} = \sqrt{2^{10}} = \square^{5} = \square$

h) $\sqrt{576} = \sqrt{\square} \times \sqrt{\square} = \square \times \square = \square$

3. QUESTION

Calculate

a) $\sqrt{16} + \sqrt[3]{8} = \square + \square = \square$

b) $\sqrt[3]{64} - \sqrt[3]{8} = \square - \square = \square$

c) $\sqrt[3]{8000} + \sqrt[3]{64000} = \square + \square = \square$

d) $3^2 + 2^3 - \sqrt[3]{27} = \square + \square - \square = \square$