

The Square Root :-

You now know what **squaring** a number does. It multiplies the number by itself. $5^2 = 5 \times 5 = 25$.

In reverse, what number, times itself, gives 25? \Rightarrow The answer of course is **5** (since $5 \times 5 = 25$).

We say that **the square root** of 25 is 5 and use the symbol $\sqrt{\quad}$ like this $\Rightarrow \sqrt{25} = 5$.

It reads as **the square root of 25 is 5**. Here are some **examples** :-

$$\sqrt{16} = 4 \quad (\text{since } 4 \times 4 = 16), \quad \sqrt{81} = 9 \quad \sqrt{1.44} = 1.2 \quad \sqrt{6^2 + 8^2} = \sqrt{36 + 64} = \sqrt{100} = 10$$

5. If $m = 3$ and $n = 4$, find the values of :-

- | | | | | | | | |
|---|-------------|---|-------------|---|--------------------|---|-----------------|
| a | m^2 | b | $m^2 + n^2$ | c | $(n - m)^2$ | d | \sqrt{n} |
| e | $(n + m)^2$ | f | $2m^2$ | g | $\sqrt{3mn}$ | h | $(m - 2)^2$ |
| i | $35 - 2n^2$ | j | $40 - 4m^2$ | k | $\sqrt{m^2 + n^2}$ | l | $(n^2 - m^2)^2$ |

6. If $x = 4$, $y = -2$ and $z = 1$, find :-

- | | | | | | |
|---|------------------|---|-----------------|---|--------------------|
| a | $5x + y$ | b | $2y + 5z$ | c | y^2 |
| d | $10 + 8z^2$ | e | $2x^2 + 3y^2$ | f | $z^2 + y^2$ |
| g | $5x^2 + 10y - z$ | h | $4y^2 - 3x - z$ | i | $2z^2 + 4y^2 - 3x$ |

7. Given $a = 2$, $b = 8$, $c = 10$ and $d = -4$, find :-

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|---|----------------------|---|------------------------|---|----------------------|
| a | $\frac{1}{2}a$ | b | $\frac{1}{4}b$ | c | $\frac{2}{5}c$ |
| d | $\frac{1}{5}(a + b)$ | e | $\frac{1}{3}(c + d)$ | f | $\frac{1}{7}(c - d)$ |
| g | $\frac{1}{4}(b - d)$ | h | $\sqrt{\frac{b+c}{2}}$ | i | $2c^2 - 25d$ |

8. In each of the following formulae, find the value of the letter for which you are asked :-

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|---|---------------------------|------------|--|
| a | $P = q - r$ | find P , | when $q = 9.5$ and $r = 2.5$. |
| b | $D = S \times T$ | find D , | when $S = 60$ and $T = 1.5$. |
| c | $W = G \times H$ | find W , | when $G = 25$ and $H = 6$. |
| d | $V = Ah$ | find V , | when $A = 40$ and $h = 2.5$. |
| e | $C = ab$ | find C , | when $a = 2.6$ and $b = 20$. |
| f | $D = e \times f \times g$ | find D , | when $e = 100$, $f = 5$ and $g = 0.5$. |
| g | $T = 2m + 2n$ | find T , | when $m = 3.5$ and $n = 7.5$. |
| h | $N = z - 100v$ | find N , | when $z = 500$ and $v = 4.4$. |
| i | $A = \frac{b}{c}$ | find A , | when $b = 1200$ and $c = 40$. |
| j | $G = \sqrt{z - 9v}$ | find G , | when $z = 100$ and $v = 4$. |
| k | $J = \frac{h - g}{k}$ | find J , | when $h = 26$, $g = -4$ and $k = 3$. |

$$\begin{aligned} P &= q - r \\ P &= 9.5 - 2.5 \\ P &= \dots \end{aligned}$$

