COSMOS
COACHING CENTRE

Formula and Equations

Substitution

1 Evaluate these expressions, given $a = 3$, $b = 4$ and $c = 8$.

a $5a + b$ **b** $a + 4b$ **c** $a - b + c$

d $a^2 + b^2$ **e** $4b \times (-2a)$ **f** $\sqrt{2ab}$

g $\frac{abc}{2}$ **h** $b^2 \div c$ **i** $\frac{2ab}{c}$

2 Find the value of $3a + 2b$ when:

a $a = 5$ and $b = 5$ **b** $a = 6$ and $b = -4$ **c** $a = 0$ and $b = 0$

d $a = -7$ and $b = -2$ **e** $a = \frac{2}{3}$ and $b = 1$ **f** $a = 2$ and $b = \frac{1}{2}$

3 Calculate the value of $e^2 - 3$ when:

a $e = 1$ **b** $e = 3$ **c** $e = 10$

d $e = 2$ **e** $e = -1$ **f** $e = -2$

g $e = \frac{1}{2}$ **h** $e = 3.1$ **i** $e = \frac{1}{5}$

4 Determine the value of $2r^2 + r + 1$ when:

a $r = 2$ **b** $r = 5$ **c** $r = -7$

d $r = -0.2$ **e** $r = \frac{2}{3}$ **f** $r = -\frac{3}{4}$

5 Calculate the value of mc^2 when:

a $m = 4$ and $c = 2$ **b** $m = 2$ and $c = 7$ **c** $m = -3$ and $c = -10$

d $m = 8$ and $c = 0.5$ **e** $m = -0.2$ and $c = 15$ **f** $m = 6.25$ and $c = -1.5$

g $m = \frac{7}{10}$ and $c = \frac{1}{5}$ **h** $m = -\frac{3}{8}$ and $c = 0.75$ **i** $m = \frac{7}{9}$ and $c = 0.3$

6 Find $\sqrt{\frac{2a}{b}}$ when:

a $a = 6$ and $b = 3$ **b** $a = 50$ and $b = 4$ **c** $a = -1$ and $b = -0.5$

d $a = 18$ and $b = 4$ **e** $a = -0.25$ and $b = -0.5$ **f** $a = 8$ and $b = 0.25$

g $a = \frac{1}{4}$ and $b = 8$ **h** $a = \frac{7}{8}$ and $b = \frac{4}{7}$ **i** $a = -\frac{1}{10}$ and $b = -125$