GCSE HIGHER · REVISION MAT 3

Using and rearranging formulae

1 Find the value of $3a^2 - b$ when $a = 4$ and $b = 10$.

2 Make h the subject of

$$A = \frac{bh}{2}$$

3 Sam substitutes $x = -3$ into $x^2 + 2x$ and gets -15.

Explain his mistake.

4 A plumber charges $C = 25 + 12h$ pounds for h hours.

A bill is £109.

How many hours did the plumber work?

5 Show that making m the subject of

$$F = \frac{Gm}{r^2}$$

gives $m = \frac{Fr^2}{G}$.

6 $s = ut + \frac{1}{2}at^2$

Find a when $s = 100$, $u = 5$ and $t = 4$.

7 Make x the subject of

$$3(x - a) = b(x + 2)$$

8 $T = 2\pi\sqrt{\frac{w}{g}}$

Make w the subject.

Find w when $T = 2$ and $g = 9.8$, to 3 s.f.

ANSWERS · REVISION MAT 3

Using and rearranging formulae

1 $3 \times 16 - 10$

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2 $h = \frac{2A}{b}$

3 $(-3)^2 = 9$, not -9.

$9 - 6 = 3$

4 $109 = 25 + 12h$

$84 = 12h$

7 hours

5 $Fr^2 = Gm$

$m = \frac{Fr^2}{G}$

6 $100 = 20 + 8a$

$80 = 8a$

$a = 10$

7 $3x - 3a = bx + 2b$

$x(3 - b) = 3a + 2b$

$x = \frac{3a + 2b}{3 - b}$

8 $\frac{T}{2\pi} = \sqrt{\frac{w}{g}}$

$w = \frac{gT^2}{4\pi^2}$

$w = 0.993$