



EXAM PAPERS PRACTICE

GCSE OCR Math J560

Substitution

Answers

*"We will help you to
achieve A Star "*



Answer 1



You can work out the amount of medicine, c ml, to give to a child by using the formula

$$c = \frac{ma}{150}$$

m is the age of the child, in months.

a is an adult dose, in ml.

A child is 30 months old.

An adult's dose is 40 ml.

Work out the amount of medicine you can give to the child.

$$c = \frac{30 \times 40}{150}$$

$$= \frac{1200}{150}$$

$$= \frac{12 \times 10^2}{8 \times 8}$$

$$= \frac{8}{1}$$

$$= \underline{\underline{8}}$$

TOP: 3×4
WITH 2 ZEROS

CANCEL
ZEROS

8 ml

SPLIT INTO
EASY FACTORS
AND CANCEL.



Answer 2

The body mass index, B , for a person of mass m kg and height h metres is given by the formula

$$B = \frac{m}{h^2}$$

Usman has a mass of 50 kg.

He has a height of 1.57 m.

- (a) Work out Usman's body mass index.
Give your answer correct to one decimal place.

$$\begin{aligned} B &= \frac{50}{1.57^2} \\ &= 20.284798... \\ &= \underline{20.3} \end{aligned}$$

↓ ↓
Round UP ≥ 5

20.3



Answer 3

$$f = 3g + 7h$$

Work out the value of f when $g = -5$ and $h = 2$

$$\begin{aligned} f &= 3 \times (-5) + 7 \times 2 \\ &= -15 + 14 \\ &= \underline{\underline{-1}} \end{aligned}$$

Answer 4

$$W = \frac{5.6a}{b^2}$$

$$a = 1.28 \quad b = 0.8$$

Work out the value of W .

$$W = \frac{5.6 (1.28)}{0.8^2} = 11.2$$

$$W = \dots\dots\dots 11.2 \dots\dots\dots$$



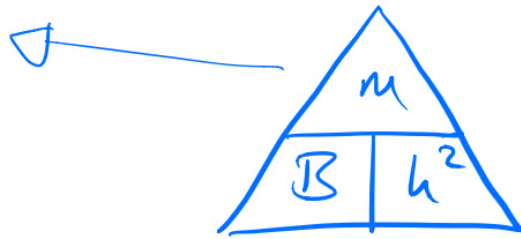
Answer 5

Tom's height is 1.80 m.

He wants his body mass index to be 21

(b) Work out the mass that will give Tom a body mass index of 21

$$\begin{aligned}m &= B \times h^2 \\ &= 21 \times 1.80^2 \\ m &= \underline{\underline{68.04 \text{ kg}}}\end{aligned}$$



Answer 6

$$v = w^2 - 2w.$$

Work out the value of v when $w = 6$

$$v = (6)^2 - 2(6)$$

$$v = 36 - 12$$

$$v = 24$$

$$v = \underline{\underline{24}} \dots\dots\dots$$



Answer 7

$$H = g^3 + 6g$$

Work out the value of H when $g = 2$

Substitute 2 into equation H

$$2 \times 2 \times 2 + 6(2) = 8 + 12 = 20$$

$$H = 20$$



Answer 8

You can change temperatures from °F to °C by using the formula

$$C = \frac{5(F - 32)}{9}$$

F is the temperature in °F.

C is the temperature in °C.

The minimum temperature in an elderly person's home should be 20°C.

Mrs Smith is an elderly person.

The temperature in Mrs Smith's home is 77°F.

Decide whether or not the temperature in Mrs Smith's home is lower than the minimum temperature should be.

$$F = 77 \rightarrow C = \frac{5(77 - 32)}{9}$$
$$C = \frac{5 \times 45}{9}$$
$$C = 5 \times 5$$
$$C = \underline{25^\circ\text{C}}$$

77
<u>32</u>
45

No, BECAUSE $25^\circ\text{C} > 20^\circ\text{C}$.



Answer 9

$$h = 3t^2$$

(a) Work out the value of h when $t = 5$

$$\begin{aligned} h &= 3t^2 \\ t=5: \quad h &= 3 \times 5^2 \\ h &= 3 \times 25 \\ h &= \underline{\underline{75}} \end{aligned}$$

$$\begin{array}{r} 25 \\ 25^+ \\ \hline 50 \\ 25^+ \\ \hline 75 \end{array}$$



Answer 10

$$A = 4bc$$

$$A = 100$$

$$b = 2$$

Work out the value of c .


$$100 = 4 \times 2 \times c$$

$$\frac{100}{8} = \frac{8c}{8}$$

$$\underline{c = 12.5}$$



Answer 11

$$y = p - 2qx^2$$

$$p = -10$$

$$q = 3$$

$$x = -5$$

Work out the value of y .

$$y = -10 - 2 \times 3 \times (-5)^2$$

$$= -10 - 2 \times 3 \times 25$$

$$= -10 - 6 \times 25$$

$$= -10 - 150$$

$$= \underline{\underline{-160}}$$

$$(-5)^2$$

$$= -5 \times -5$$

$$= \underline{25}$$

$$\begin{array}{r} \times 25 \\ \hline \end{array}$$

$$\times 1 \quad 25$$

$$\times 2 \quad 50$$

$$\times 4 \quad 100 \quad +$$

$$\times 6 \quad 150$$



Answer 12

$$x = 0.7$$

Work out the value of $\frac{(x+1)^2}{2x}$

Write down all the figures on your calculator display.

$$\frac{(0.7+1)^2}{2 \times 0.7} = \underline{\underline{2.064285714 \dots}}$$