

Name: _____

Exam Style Questions

Substitution



Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

Video 20



1. Find the value of $5c + 2$, if $c = 6$.

$$5 \times 6 + 2$$
$$30 + 2 = 32$$

32

.....
(1)

-
2. If $x = 6$ and $y = -2$, find the value of

(a) x^2

$$6^2 = 36$$

36

.....
(1)

(b) $5x + y$

$$5 \times 6 + (-2)$$
$$30 + (-2) = 28$$

28

.....
(1)

(c) $x + y^2$

$$6 + (-2)^2$$
$$6 + 4 = 10$$

10

.....
(1)

(d)

$$\frac{y + 20}{x}$$

$$\frac{-2 + 20}{6} = \frac{18}{6} = 3$$

3

.....
(2)

3. You are given that $m = 0.5$, $p = 0.75$ and $c = 2.2$

Find the value of

(a) $3c + m$

$$3 \times 2.2 + 0.5$$
$$6.6 + 0.5 = 7.1$$

$$\underline{7.1}$$

(2)

(b) $m + p + c$

$$0.5 + 0.75 + 2.2$$

$$\underline{3.45}$$

(1)

-
4. $F = 1.8C + 32$

(a) Work out the value of F when $C = 2$

$$F = 1.8 \times 2 + 32$$
$$= 3.6 + 32 =$$

$$\underline{35.6}$$

(2)

(b) Work out the value of C when $F = 50$

$$50 = 1.8C + 32$$
$$\begin{array}{r} -32 \\ \hline 18 = 1.8C \end{array}$$
$$\begin{array}{r} \div 1.8 \quad \div 1.8 \\ \hline 10 = C \end{array}$$

$$\underline{10}$$

(2)

5. Given that $a = 4$, $b = 9$ and $c = -5$

Work out the value of

$$\frac{ab + 24}{2c} \quad \frac{4 \times 9 + 24}{2 \times (-5)} = \frac{36 + 24}{-10}$$
$$\frac{60}{-10} = -6$$

.....
-6
(3)

6. (a) Find the value of $5(a + c)$ when $a = 4$ and $c = 9$.

$$5(4 + 9)$$
$$5(13) = 65$$

.....
65
(2)

- (b) Find the value of $7x + 2y$ when $x = 2$ and $y = -9$.

$$7 \times 2 + 2 \times (-9)$$
$$14 + (-18) =$$

.....
-4
(2)

7. $A = 2W + 2L$

Find A if $W = 3$ and $L = 9$

$$A = 2 \times 3 + 2 \times 9$$
$$= 6 + 18$$
$$= 24$$

.....
24
(2)

8. $A = 2W + 2L$

Find W if $A = 30$ and $L = 11$

$$30 = 2W + 2 \times 11$$

$$30 = 2W + 22$$

$$8 = 2W$$

$$W = 4$$

4

.....
(2)

9. The cost in pounds, C , of hiring a car is given by
 $C = 25d + 45$

where d is the number of days the car is hired.

(a) Find C if $d = 4$.

$$\begin{aligned} C &= 25 \times 4 + 45 \\ &= 100 + 45 \\ &= 145 \end{aligned}$$

145

.....
(2)

(a) Find d if $C = 245$

$$\begin{aligned} 245 &= 25d + 45 \\ -45 &\quad -45 \\ \hline 200 &= 25d \\ \div 25 &\quad \div 25 \\ \hline 8 &= d \end{aligned}$$

8

.....
(2)

10. The amount of medicine, s ml, to give to a child can be worked out using the formula.

$$s = \frac{am}{150}$$

s is the amount of medicine, in ml.
 a is the adult dose, in ml.
 m is the age of the child, in months.

A child is 20 months old.
An adult's dose is 45ml.

Work out the amount of medicine the child should be given.

$$s = \frac{45 \times 20}{150} = \frac{900}{150}$$

.....ml
(3)

6

11. $y = w - 2a^2$

$w = 400$
 $a = 5$

Work out the value of y .

$$\begin{aligned} y &= 400 - 2(5)^2 \\ y &= 400 - 2 \times 25 \\ y &= 400 - 50 \end{aligned}$$

.....ml
(2)

350

12. $v = u + at$

(a) Work out v when $u = 23$, $a = 4$ and $t = 3$

$$\begin{aligned}v &= 23 + 4 \times 3 \\ &= 23 + 12 \\ &= 35\end{aligned}$$

$$\begin{array}{r}35 \\ \hline\end{array} \quad (2)$$

(b) Work out u when $v = 30$, $a = 2$ and $t = 8$

$$\begin{aligned}30 &= u + 2 \times 8 \\ 30 &= u + 16 \\ 14 &= u\end{aligned}$$

$$\begin{array}{r}14 \\ \hline\end{array} \quad (2)$$

(c) Work out t when $v = 40$, $u = 12$ and $a = 4$

$$\begin{aligned}40 &= 12 + 4t \\ 28 &= 4t \\ t &= 7\end{aligned}$$

$$\begin{array}{r}7 \\ \hline\end{array} \quad (2)$$

13.

$$m = abc$$

Find m if $a = 3$, $b = -8$ and $c = 2$

$$\begin{aligned}m &= 3 \times (-8) \times 2 \\ m &= (-24) \times 2\end{aligned}$$

$$\begin{array}{r}-48 \\ \hline\end{array} \quad (2)$$