Name:

Exam Style Questions

Substitution

Corbettmaths

Equipment needed: Calculator, pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Video 20

Answers and Video Solutions

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

.....

(1)

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2. Find the value of $4a - b$ when $a = 9$ and $b = 8$

.....

(2)

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3. Find the value of $12h + 9t$ when $h = 11$ and $t = 3$

.....

(2)

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4. Circle the expression that has the greatest value when $y = 10$

$2y$ $\quad$ $31 - y$ $\quad$ $y + 9$ $\quad$ $\frac{y}{2}$

(1)

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

(a) x^2

.....

(1)

(b) $5x + y$

.....

(1)

(c) $x + y^2$

.....

(1)

(d) $\dfrac{y + 20}{x}$

.....

(2)

---

6. $P = 2W + 2L$

Find P if W = 3 and L = 9

.....

(2)

7. You are given that $m = 0.5, \quad p = 0.75$ and $c = 2.2$

Find the value of

(a) $3c + m$

.....

(2)

(b) $m + p + c$

.....

(1)

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8. The cost of hiring a hot tub is found using the formula

Hire cost = £50 plus an extra £45 per day

(a) Work out the hire cost for hiring the hot tub for 21 days.

.....

(2)

Alex hires the hot tub for a number of days and the cost is £545

(b) How many days did Alex hire the hot tub?

.....

(2)

9. This formula can be used to convert between Celsuis (C) and Fahrenheit (F).

$F = 1.8C + 32$

(a) Convert $2°C$ into Fahrenheit

.....

(2)

(b) Convert $50°F$ into Celsius

.....

(2)

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

Work out the value of

$$\frac{ab + 24}{2c}$$

.....

(3)

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

.....

(2)

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

.....

(2)

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12. $P = 2W + 2L$

Find W if P = 30 and L = 11

.....

(2)

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

$w = 400$

$a = 5$

Work out the value of y

.....

(2)

14. 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

.....

(2)

(b) Find d if C = 245

.....

(2)

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15. $W = 2x + 5y$

(a) Work out the value of W when $x = 8$ and $y = -3$

.....

(2)

(b) Work out the value of x when $W = 59$ and $y = 7$

.....

(2)

16. The amount of medicine, s ml, to give to a puppy, up to 18 months old, can be worked out using the formula.

$$s = \frac{am}{18}$$

s is the amount of medicine, in ml.
a is the dose for an adult dog, in ml.
m is the age of the puppy, in months.

A puppy is 3 months old.
An adult dog's dose is 45ml.

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

.....ml
(3)

17.

$$m = abc$$

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

.....
(2)

18. Heidi is a plumber.

She uses this formula to work out the cost to charge her customers.

$$C = 40h + p + 0.5d$$

C is the total cost of the job, in pounds.
h is the number of hours worked.
p is the cost of any parts used, in pounds.
d is the distance travelled, in miles.

Heidi's last job took 3 hours and the cost of the parts used was £17.50
The total cost of the job was £156

Work out how far Heidi travelled in miles.

.....miles

(3)

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19. $x + 3 = 10$

Work out the value of $\dfrac{5x - 3}{4}$

.....

(2)

20. $v = u + at$

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

.....

(2)

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

.....

(2)

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

.....

(2)

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21. $2x - y = 17$

(a) Work out the value of $6x - 3y$

.....

(2)

(b) Work out the value of $y - 2x$

.....

(1)

22. $y = 7x^2$

Explain what happens to the value of y when the value of x doubles.

.....

.....

(2)

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23. $y = \frac{800}{x^3}$

Explain what happens to the value of y when the value of x doubles.

.....

.....

(2)

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24. Calculate the value of $x^y - y^x$

when $x = 3$ and $y = 6$

.....

(2)

25. $80 = 2mn$

m and n are negative integers.

Write down a pair of possible values for m and n.

m = ... and n = ...

(2)

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26. $y = (x - 5)(x + 1)$

Find y if $x = -3$

.....

(2)

27. $w = \dfrac{x}{2y}$

$4w + 3y = 30$

Work out the value of x when $y = 4$

.....

(3)