Name:

Exam Style Questions

Forming Expressions

Corbettmaths

Equipment needed: Pen, Calculator

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 16

Answers and Video Solutions

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1. A school has 5 year groups.
There are x students in each year group.

Write an expression, in terms of x, for the total number of students at the school.

$5x$

(1)

2. Kyle takes x minutes to solve a puzzle.

It takes Noah 4 minutes longer to solve the puzzle than Kyle.

Circle the expression for the number of minutes it takes Noah to solve the puzzle.

$4x$ $\quad$ $x-4$ $\quad$ $x+4$ $\quad$ x^4

(1)

3. Apples cost *a* pence each.
Bananas cost *b* pence each.

Write down an expression for the total cost, in ~~pence~~, of 3 apples and 5 bananas.

$3a + 5b$ pence

(2)

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4. Martin is x years old.
Jennifer is 3 years younger than Martin.
Connor is twice as old as Martin.

(a) Write an expression for Jennifer's age.

$x - 3$

(1)

(b) Write an expression for Connor's age.

$2x$

(1)

(c) Write an expression for the sum of the three ages

$x + (x - 3) + 2x$

$4x - 3$

(2)

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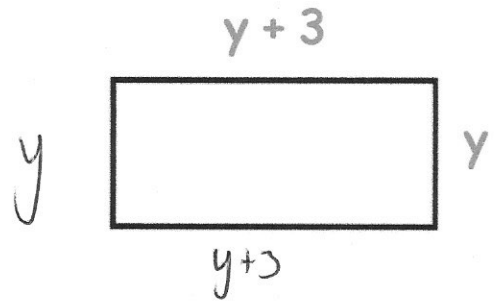
5.



The diagram shows a rectangle. All measurements are in centimetres.

Write an expression, in terms of y, for the perimeter of the rectangle.

4y + 6 cm

(2)

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6. Nicola has y marbles.
Sean has 25 marbles.
Vicky has 10 marbles.

(a) Write down an expression for the total number of marbles they have.

y + 25 + 10

y + 35

(2)

Altogether they have 55 marbles.

(b) Find how many marbles Nicola has.

y + 35 = 55
−35 −35

y = 20

20

(1)

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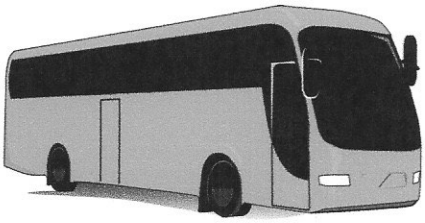
7.



The express bus from Dublin to Belfast takes x minutes.

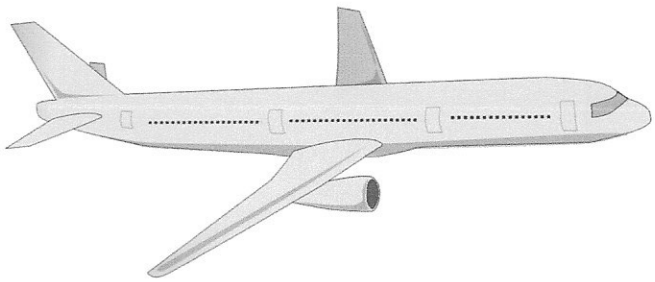
The standard bus takes 29 minutes longer.

(a) Write down an expression for the time the standard bus takes.

$x + 29$

.....

(1)



The airplane takes half the time the express bus takes.

(b) Write down an expression for the time the airplane takes.

$\frac{x}{2}$

.....

(1)

or $\frac{1}{2}x$

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8. In one week, Gina spent x minutes on the internet.
Sammy spent 15 minutes less than Gina.

(a) Write down an expression for how long Sammy spent on the internet.

$x - 15$

(1)

Neil spent three times as long as Gina on the internet.

(b) Write down an expression for how long Neil spent on the internet.

$3x$

(1)

(c) Write down an expression for total time spent on the internet.

$x + (x - 15) + 3x$

$5x - 15$

(1)

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9. Fred is 21 years old.
Hannah is y years younger than Fred.

Write an expression for Hannah's age.

$21 - y$

(1)

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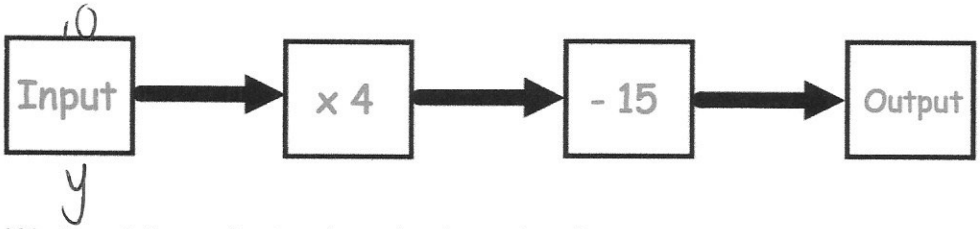
10. Henry is x years old.
Isaac is three times older than Henry. $3x$
Laura is four times older than Isaac. $12x$

Write an expression for Laura's age.

$12x$

(2)

11.



(a) Work out the output, when the input is 10.

$10 \times 4 = 40$

$40 - 15 = 25$

25

(1)

(b) Work out the input, when the output is 25.

$45 + 15 = 60$

$60 \div 4 = 15$

15

(1)

(c) Write an expression for the output, if the input is y.

$4 \times y = 4y$

$4y - 15$

$4y - 15$

(1)

(d) If the input is the same as the output, work out the input.

$x = 4x - 15$

$+15 \quad +15$

$x + 15 = 4x$

$-x \quad -x$

$15 = 3x$

$3x = 15$

$\div 3 \quad \div 3$

$x = 5$

5

(1)

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12. In a school canteen, a cup of tea costs 60p.

(a) Write down an expression for the cost, in pence, of y cups of tea.

$60y$ pence
(1)

The canteen sells twice as many cups of coffee as it does cups of tea.

(b) Write down an expression for the cups of coffee sold when y cups of tea are sold.

$2y$
(1)

Each cup of coffee costs 80p.

(c) Write down an expression for the cost, in pence, of the cups of coffee sold.

$2y \times 80$

$160y$ pence
(1)

The canteen also sells biscuits and fruit.

(d) Write down an expression for the cost, in pence, of w biscuits at 15p each and 8 pieces of fruit at 30p each.

biscuits $15w$

fruit $8 \times 30 = 240$

$15w + 240$ pence
(1)

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13. An airplane has economy and first class seating.
There are s seats in each row in economy.
There are t seats in each row in first class.

There are 9 rows in first class and 24 rows in economy.

Write down an expression, in terms of s and t, for the number of seats on the airplane.

$9t + 24s$

$9t + 24s$

(2)

14. Shauna bakes a gingerbread man, two cupcakes and a chocolate cake.
The mass of each item is shown below, in grams.

x - 20 x x x + 250

The total mass of the four items is M grams.

Write a formula for M in terms of x.
Give your answer in its simplest form.

$M = (x - 20) + x + x + (x + 250)$

$M = 4x + 230$

$M = 4x + 230$

(3)

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15. A glass contains x millilitres of water.

Write an expression, in terms of x, for the amount of water in the glass in litres.

$\frac{x}{1000}$

.....

(1)

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16. A shop normally sells toasters for £y each.

In a sale, the shop reduces the price of the toasters by £15

Write down an expression for the total cost of 6 toasters in the sale.

Sale price $y - 15$

$6(y - 15)$

or

$6y - 90$

$6(y - 15)$

(3)

or

$6y - 90$

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17. Damon won 22 races.
David won 13 races.
Eddie won 4 races.
Jenson won x races.
Nigel won one more than twice the number of races Jenson won.

(a) Write down an expression for the total number of races won by the 5 drivers.

$22 + 13 + 4 + x + (2x + 1)$

$= 3x + 40$

$3x + 40$

(2)

The mean number of races won by the 5 drivers is 17.

Work out how many races Nigel won.

$5 \times 17 = 85$

$3x + 40 = 85$

$-40 \quad -40$

$3x = 45$

$\div 3 \quad \div 3$

$x = 15$

$15 \times 2 = 30$

$30 + 1 = 31$

31

(2)

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