

Name:

Teacher Assessment



Section A **Formulae and substitution** **Grade D / C**

1. Two car hire firms use different ways of charging for the hire of a car.

(a) Cheap Days uses this formula.

$$H = 50d + 120$$

H is the hire charge in pounds. d is the number of days the car is hired.

Work out H when $d = 2$

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Answer £

(2)

(b) Cheap Miles uses this formula.

$$H = \frac{m + 750}{5}$$

H is the hire charge in pounds. m is the number of miles the car travels.

Work out m when $H = 200$

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Answer miles

(2)

(Total 4 marks)

2. Sam buys x packets of sweets.
Each packet of sweets costs 22 pence.
Sam pays with a £5 note.
Write down an expression for the change, in pence, Sam should receive.

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Answer pence

(Total 2 marks)

3. There are p seats in a standard class coach and q seats in a first class coach.

A train has 5 standard class coaches and 2 first class coaches.

Write down an expression in terms of p and q for the number of seats in the train.

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Answer

(Total 2 marks)

4. (a) At a cafe a cup of coffee costs 75p.

Write down an expression for the cost, in pence, of x cups of coffee.

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Answerpence

(1)

(b) (i) The cafe sells twice as many cups of tea as it does cups of coffee.

Write down an expression for the number of cups of tea sold when x cups of coffee are sold.

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Answer

(1)

(ii) Each cup of tea costs 50p.

Write down an expression for the cost, in pence, of the cups of tea sold.

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Answerpence

(1)

(c) The cafe also sells cakes and buns.

(i) Write down an expression for the cost, in pence, of y cakes at 40p each and 3 buns at 60p each.

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Answerpence

(2)

(ii) The total cost of the y cakes and 3 buns is £4.60
Find the number of cakes sold.

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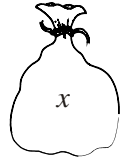
Answer

(3)

(Total 8 marks)

5. Bag A contains x counters.
 Bag B contains 8 more counters than bag A.
 Bag C contains twice as many counters as bag A.

(a) Write down the number of counters in bags B and C.



Bag A



Bag B



Bag C

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Answer Bag B.....counters

Bag C.....counters

(2)

(b) Show that the total number of counters in bags A, B and C is $4(x + 2)$

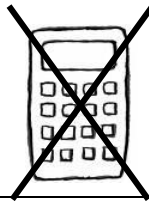
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(2)

(Total 4 marks)

Success:

Target:



Section B Rearranging - Subject Appears Once Grade D → B

1. Rearrange $y = mx + c$ to make x the subject of the formula.

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Answer $x =$

(Total 2 marks)

2. Make r the subject of the formula $p = 3 + 2r$

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Answer $r =$

(Total 2 marks)

3. Make t the subject of the formula $w = 2t + v$

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Answer

(Total 2 marks)

4. Make t the subject of the formula $u = \frac{t}{3} + 5$

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Answer $t =$

(Total 2 marks)

5. Make c the subject of the formula $d = \frac{c}{5} + e$

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Answer
(Total 2 marks)

6. Make u the subject of the formula $s = \frac{1}{2}(u + v)t$

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Answer $u =$
(Total 3 marks)

7. Rearrange the expression $4(p + r) = 7r + 11$ to make p the subject.

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Answer $p =$
(Total 3 marks)

8. Make x the subject of the formula

$$w = x^2 + y$$

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Answer $x =$
(Total 2 marks)

9. Make x the subject of $x^2 + k = 16$

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Answer $x =$

(Total 2 marks)

10. Make c the subject of the formula $E = mc^2$

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Answer $c =$

(Total 2 marks)

11. Make t the subject of the formula $w = \sqrt{t} - v$

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Answer $t =$

(Total 2 marks)

Success:

Target:



Section C Rearranging - Subject Appears Twice Grade B / A

1. You are given the formula $y = \frac{5+x}{x}$ Rearrange the formula to give x in terms of y .

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Answer $x =$
(Total 3 marks)

2. Make r the subject of the formula

$$r - 3 = \pi(t - 2r)$$

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Answer
(Total 4 marks)

3. Make x the subject of the formula

$$a(x - b) = a^2 + bx$$

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Answer
(Total 4 marks)

4. Make x the subject of the formula

$$y = \frac{m + x}{x - 2}$$

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Answer

(Total 4 marks)

5. Make x the subject of the formula

$$y = \frac{3x + 4}{x - 3}$$

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Answer $x =$

(Total 4 marks)

6. Rearrange $y = \frac{xy + 2}{3x - 4}$

to make x the subject.
Simplify your answer as much as possible.

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Answer
(Total 4 marks)

7. Rearrange the formula $3y + 2 = \frac{x + 3}{x}$ to make x the subject.

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Answer
(Total 4 marks)

8. Make m the subject of the formula

$$E = mgh + \frac{1}{2}mv^2$$

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(Total 2 marks)

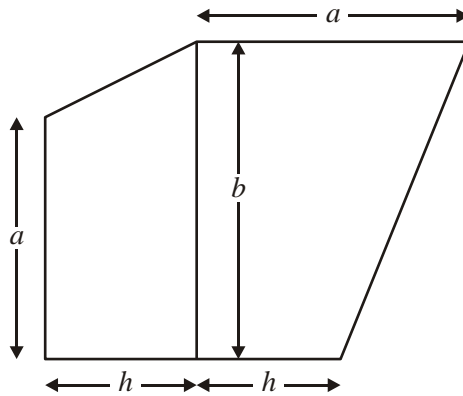
9. Make P the subject of $A = P + \frac{PRT}{100}$

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Answer $P =$

(Total 3 marks)

10. A shape is made from two trapezia.



The area of this shape is given by

$$A = \frac{h}{2}(a + b) + \frac{b}{2}(a + h)$$

Rearrange the formula to make a the subject.

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Answer a

(Total 4 marks)

Success:

Target: