

Name:

Teacher  
Assessment



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

1. An approximate rule for converting degrees Fahrenheit into degrees Centigrade is

$$C = \frac{F - 30}{2}$$

Use this rule to convert 22°F into °C.

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.....  
.....

Answer ..... degrees Centigrade  
**(Total 2 marks)**

2. This is the payment plan for Donal's mobile phone. He receives a bill every month.

**PAYMENT PLAN**



**£5 per month**

**PLUS**

**5p per minute**

- (a) In January, Donal did not make any calls. How much was his bill?

.....

Answer £ .....  
**(1)**

- (b) In February, Donal made 100 minutes of calls. How much was his bill?

.....  
.....

Answer £ .....  
**(2)**

- (c) In March, Donal's bill was £7.50. How many minutes of calls did he make?

.....  
.....

Answer ..... minutes  
**(2)**  
**(Total 5 marks)**

3. The rule for working out a taxi fare is

£1.40  
plus  
75 p per mile

(a) Jo travels 2 miles. Work out her fare.

.....  
.....

Answer £ .....

(2)

(b) Sam's taxi fare is £5.15. How many miles did he travel?

.....  
.....

Answer ..... miles

(3)

(Total 5 marks)

4. 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  $d = 2$

.....  
.....

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)

5. 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)

6. 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)

7. (a) At a cafe a cup of coffee costs 75p.  
Write down an expression for the cost, in pence, of  $x$  cups of coffee.

.....

Answer .....pence  
(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.

.....

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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Answer .....pence  
(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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Answer .....pence

(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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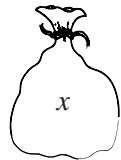
Answer .....

(3)

(Total 8 marks)

8. 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

Success:

.....

.....

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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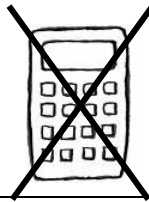
Target:

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(2)(Total 4 marks)



**Section B Rearranging the Subject of a Formula Grade D / C**

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

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Answer  $x =$  .....  
(Total 2 marks)

2. Make  $p$  the subject of the formula  $t = 5p + 40$

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.....

Answer  $p =$  .....  
(Total 2 marks)

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

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.....  
.....

Answer  $r =$  .....  
(Total 2 marks)

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

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.....  
.....

Answer .....  
(Total 2 marks)

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

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.....  
.....

Answer  $t =$ .....

(Total 2 marks)

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

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Answer .....

(Total 2 marks)

7. Make  $x$  the subject of  $w = \frac{x}{2} + 3$

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Answer  $x =$  .....

(Total 2 marks)

Success:
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Target:
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