

Non-Calculator

Q1.

A shopkeeper uses this formula to work out the cost of bags of oranges.

$$C = 1.8n$$

C is the cost in £

n is the number of bags

- (a) Work out the cost of 7 bags.

Answer £

(2)

- (b) There are four oranges in each bag.

Work out the average cost of an orange.

Give your answer in pence.

Answer _____ pence

(2)

(Total 4 marks)

Q2.

y is inversely proportional to x .

When $y = 2$, $x = 5$

Work out an equation connecting y and x .

Answer _____

(Total 3 marks)

Q3.

y is inversely proportional to the square of x .

When $x = 3$, $y = 8$

(a) Work out an equation connecting y and x .

Answer _____

(3)

(b) Work out the value of y when $x = 12$
Give your answer as a fraction in its simplest form.

Answer _____

(2)

(Total 5 marks)

Calculator

Q4.

A stone is thrown upwards with a speed of v metres per second.

The stone reaches a maximum height of h metres.

h is directly proportional to v^2

When $v = 10$, $h = 5$

Work out the maximum height reached when $v = 24$

Answer _____ m
(Total 4 marks)

Q5.

The time of each swing of a pendulum, length l cm, is T seconds.

T is directly proportional to the square root of l .

When $l = 64$ $T = 1.6$

Work out the value of T when $l = 132.25$

Answer _____ seconds
(Total 5 marks)

Q6.

w is directly proportional to y

w is inversely proportional to x^2

(a) When $y = 4$, $w = 14$

Work out the value of w when $y = 9$

Answer _____

(2)

(b) When $x = 2$, $w = 5$

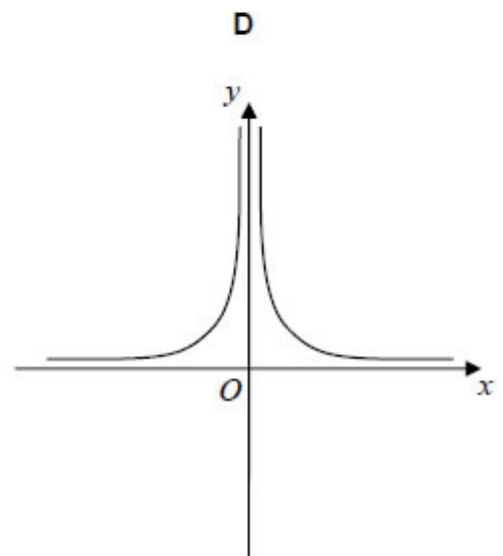
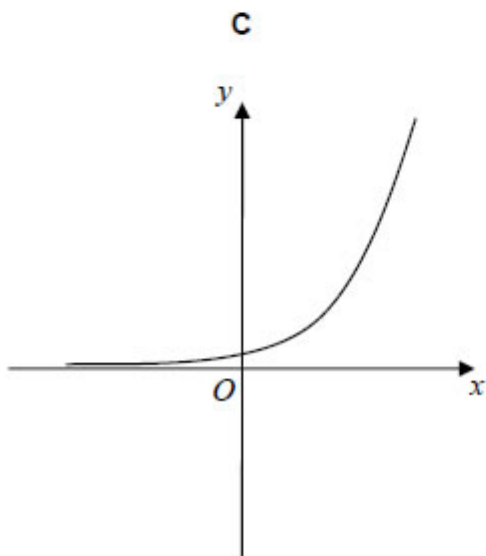
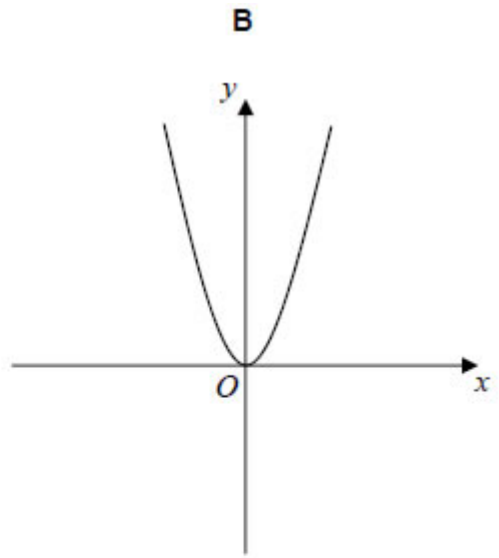
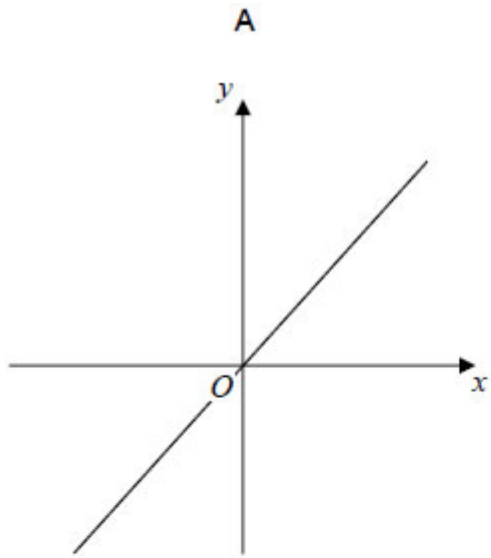
Work out the value of w when $x = 10$

Answer _____

(3)

(c) Which graph shows the relationship between y and x ?

Circle the correct letter.



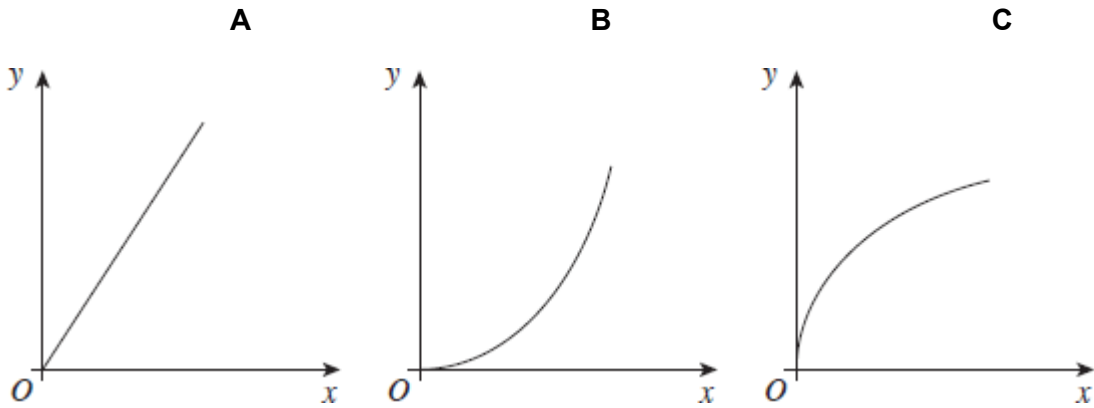
(1)
(Total 6 marks)

Q7.

The fare, £ y , for a journey is directly proportional to the square root of the distance, x miles.

- (a) Which sketch graph represents this information?

Circle the correct letter.



(1)

- (b) A 100 mile journey costs £36

What is the cost of a 250 mile journey?
Give your answer to the nearest pound.

Answer £ _____

(4)

(Total 5 marks)

Q8.

y is directly proportional to \sqrt{x}

x	36	a
y	2	5

Work out the value of a .

Answer _____

(Total 4 marks)

Q9.

y is inversely proportional to x^2 where $x > 0$

When $x = 2$, $y = 20$

(a) Form an equation for y in terms of x .

Answer _____

(3)

(b) Work out the value of x when $y = 5$

Answer _____

(2)

(Total 5 marks)