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
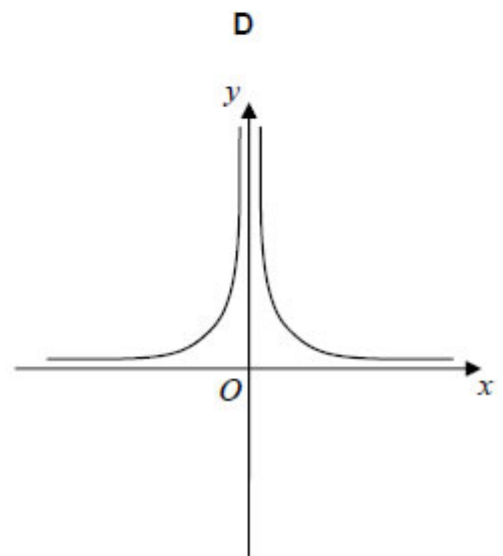
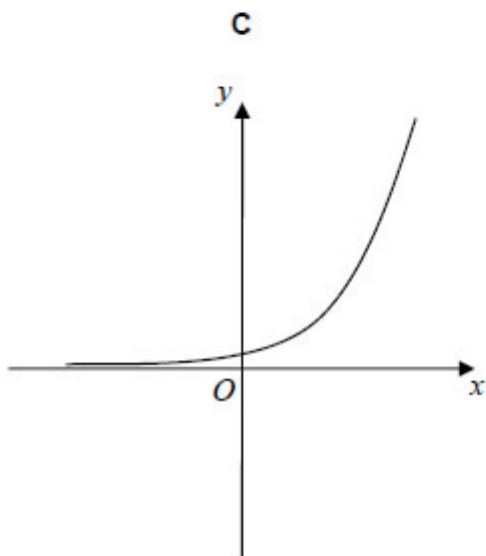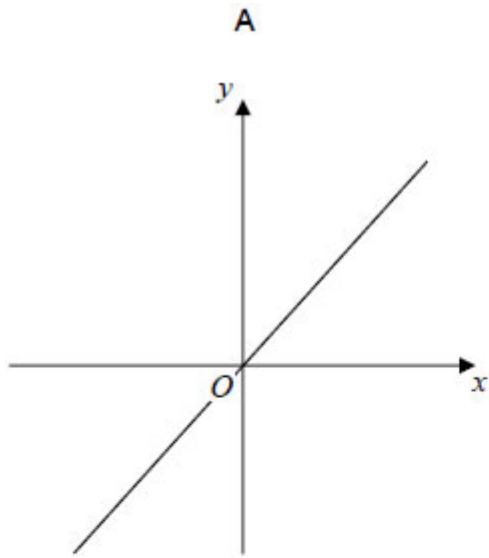Work out the value of w when x = 10

_____

_____

_____

_____

Answer _____

(3)

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

Circle the correct letter.
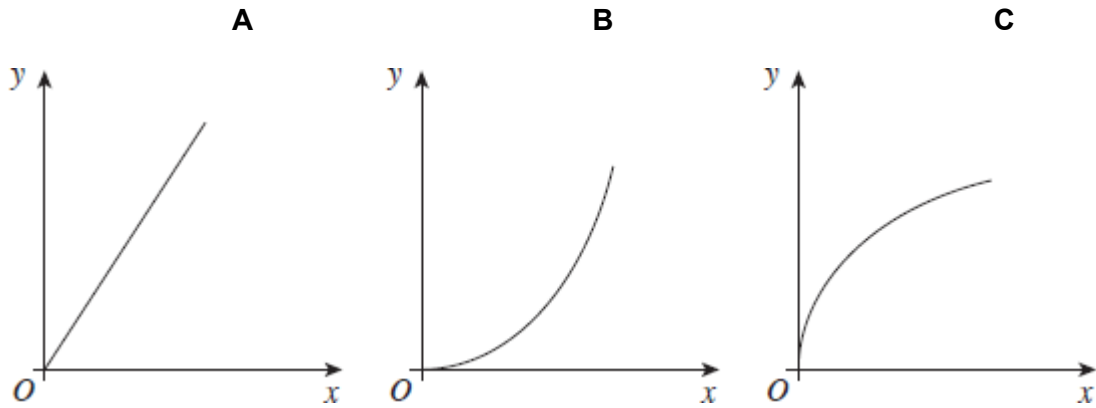
A

B

C

D
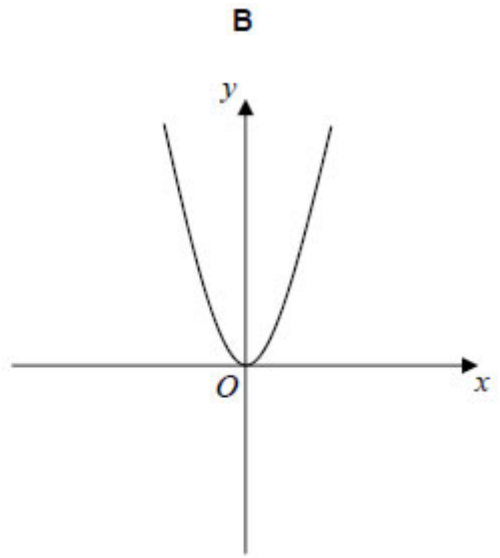
(1)
(Total 6 marks)

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.

A	B	C

(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)

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Q8.

y is directly proportional to $\sqrt{x}$

x	36	a
y	2	5

Work out the value of a.

_____

_____

_____

_____

_____

_____

_____

_____

Answer _____

(Total 4 marks)

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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)