

Mock Revision E [45]

1.

In a box of pens, there are

three times as many red pens as green pens
and two times as many green pens as blue pens.

For the pens in the box, write down
the ratio of the number of red pens to the number of green pens to the number of blue pens.

(Total 2 marks)

2.

The table shows the school year and the reaction time of eight people who took part in the same test.

School year	5	7	8	9	10	11	12	13
Reaction time (seconds)	6	5	4.8	4.5	4	4.2	3.5	3

(a) Draw a scatter graph of these data.

(2)

(b) Draw a line of best fit on your scatter graph.

(1)

(c) Describe the relationship shown by your scatter graph.

(1)

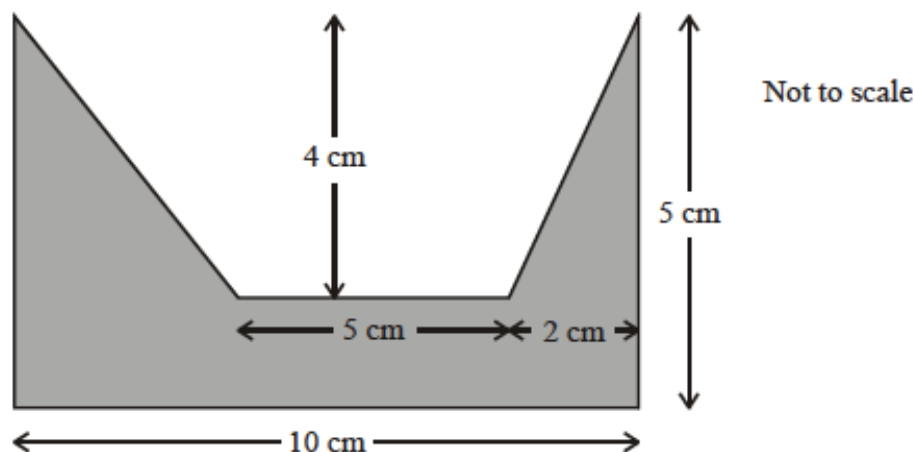
(d) Use your line of best fit to estimate the reaction time of a person in school year 12.

(1)

(Total 5 marks)

3.

A shape has dimensions as shown.

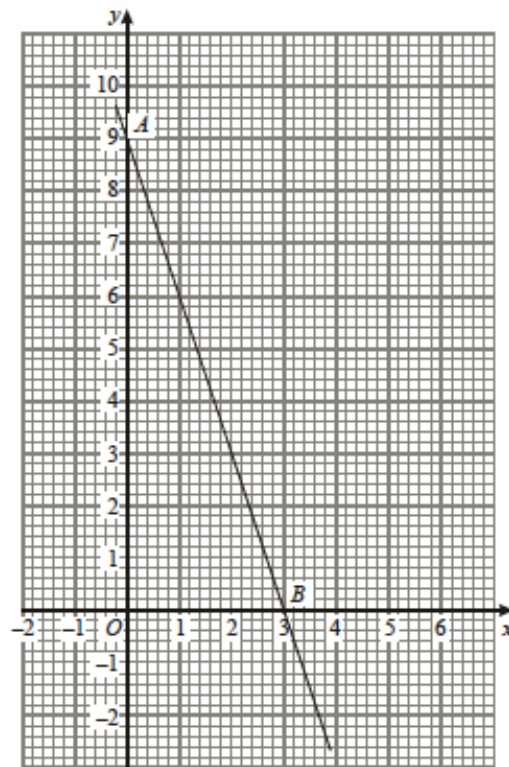


Calculate the shaded area.

(Total 3 marks)

4.

(a) Find the equation of the line AB .



(3)

(b) Give the y -coordinate of the point on the line with an x -coordinate of 6.

(2)

(Total 5 marks)

5.

Make r the subject of the formula

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

(Total 4 marks)

6.

A large company is selecting unique passwords for its 10000 employees.

The first and second entries are capital letters, but they cannot be the same.

The third entry is an odd digit and the fourth entry is an even digit, but it cannot be zero.

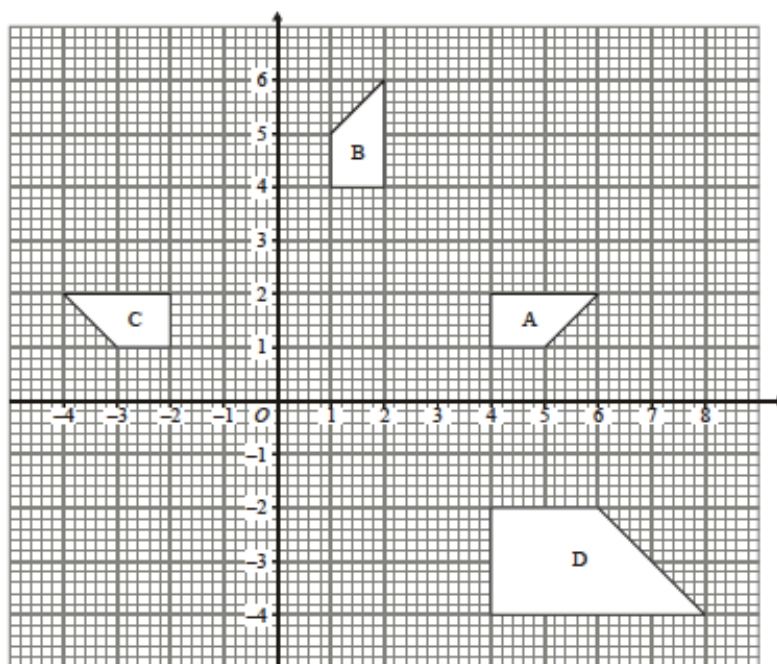
Will this method generate enough unique passwords for the company?

Explain your answer fully.

(Total 3 marks)

7.

The diagram shows four shapes, A, B, C and D.



(a) Describe fully the single transformation that takes shape A onto shape B.

(2)

(b) Describe fully the single transformation that takes shape B onto shape C.

(3)

(c) Describe fully the single transformation that takes shape C onto shape D.

(3)

(Total 8 marks)

8.

(a) The table shows values of x and y .

x	2	4	5
y	12	48	75

Show that y is directly proportional to x^2 .

[2]

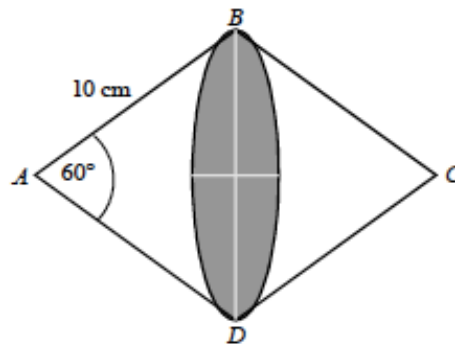
(b) b is inversely proportional to the square root of a .
 b is 12 when a is 9.

Find a formula linking a and b .

(Total 5 marks)

9.

$ABCD$ is a rhombus with side length 10 cm.



Angle $BAD = 60^\circ$.

ABD is a sector of a circle with centre A .

CBD is a sector of a circle with centre C .

(a) Calculate the area of triangle ABD .

(2)

(b) Calculate the shaded area.

(3)

(Total 5 marks)

10.

Non-calculator

Find the exact value of the area of this right-angled triangle.

(Total 5 marks)

