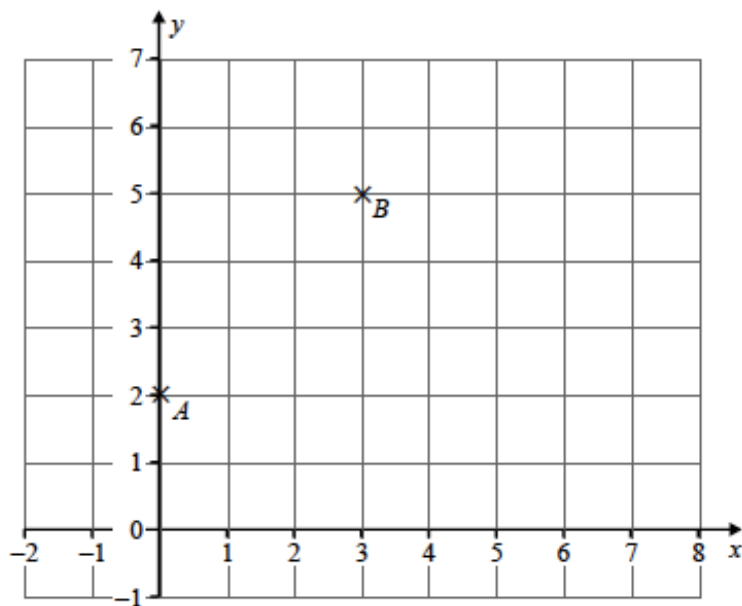


## Revision F5 (October Exam) B [52]

1.



$A$  is the point  $(0,2)$  and  $B$  is the point  $(3,5)$ .

(a) Find the exact length of  $AB$ .

(2)

(b) Find the equation of the line joining the points  $A$  and  $B$ .

(3)

(Total 5 marks)

2.

During a game, players can win and lose counters.

At the start of the game

Rob, Tim and Zak share the counters in the ratio  $5 : 6 : 7$

At the end of the game

Rob, Tim and Zak share the **same number** of counters in the ratio  $7 : 9 : 8$

Show that Rob ends the game with more counters than he started with.

[3 marks]

3.

(a) An ordinary six-sided dice is biased.

The probabilities of the dice landing on each of the numbers are

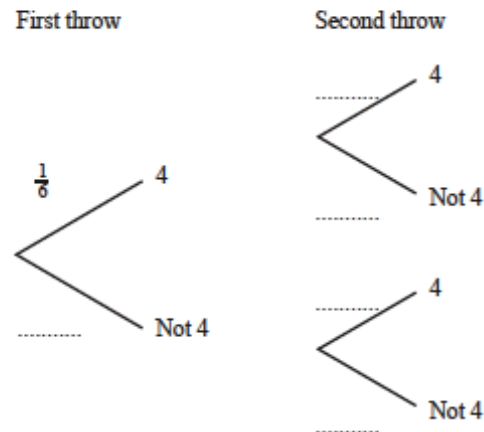
<b>Number</b>	1	2	3	4	5	6
<b>Probability</b>	$p$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{2}{9}$

Work out the value of  $p$ .

(2)

(b) The dice is thrown twice.

- (i) Copy and complete the tree diagram.



(2)

- (ii) Calculate the probability that only one 4 is thrown.

(3)

(Total 7 marks)

4.

14 The table shows the marks gained by 150 students taking an examination.

	Zoom In							
Mark ( $m$ )	$0 < m < 10$	$10 < m < 20$	$20 < m < 30$	$30 < m < 40$	$40 < m < 50$	$50 < m < 60$	$60 < m < 70$	$70 < m < 80$
Frequency	9	14	26	27	25	22	17	10

- (a) (i) Construct a cumulative frequency table.

Mark ( $m$ )	$m \leq 10$	$m \leq 20$	$m \leq 30$	$m \leq 40$	$m \leq 50$	$m \leq 60$	$m \leq 70$	$m \leq 80$
Cumulative Frequency	9							150

[2]

- (a) On a sheet of graph paper, draw the cumulative frequency graph.

[4]

- (b) Students are to be awarded Gold, Silver, Bronze or Fail.

The students' teacher wishes to award the top 10% of students Gold, the next 60% Silver and the next 20% Bronze.

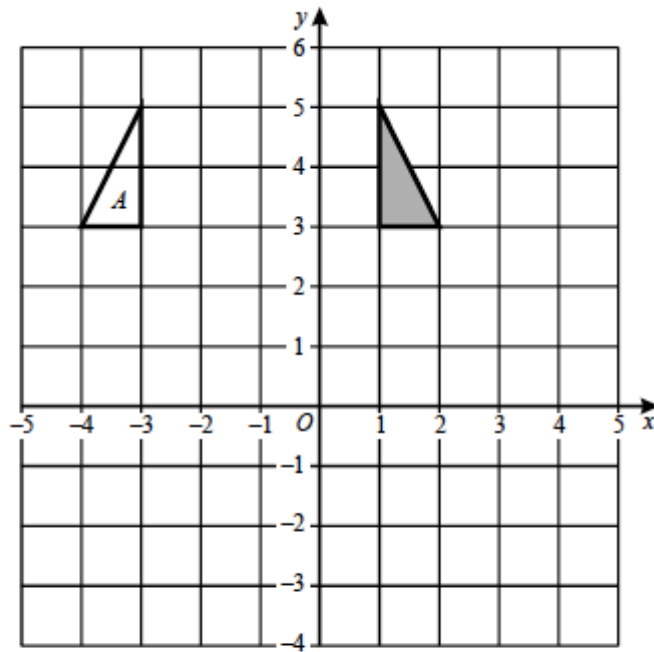
Use your graph to estimate the lowest mark that Silver will be awarded for.

- (c) Explain why the teacher's method will not necessarily award Gold to exactly 10% of the students.

(Total 10 marks)

5.

(a)



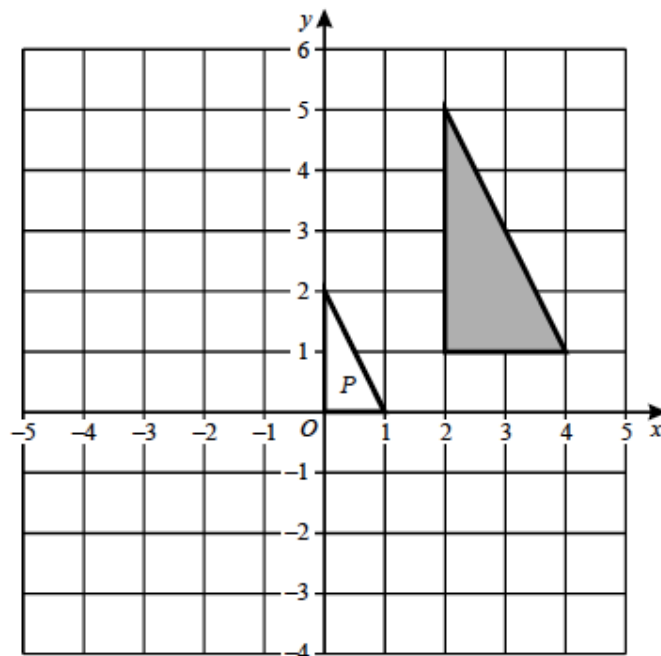
(i) Describe fully the **single** transformation that takes the shaded triangle to triangle *A*.

(2)

(ii) On the grid above translate the shaded triangle by 2 squares to the right and 4 squares down.

(1)

(b) Triangle *P* is an enlargement of the shaded triangle.



(i) What is the scale factor of the enlargement?

(1)

(ii) What is the centre of enlargement?

(1)

(Total 5 marks)

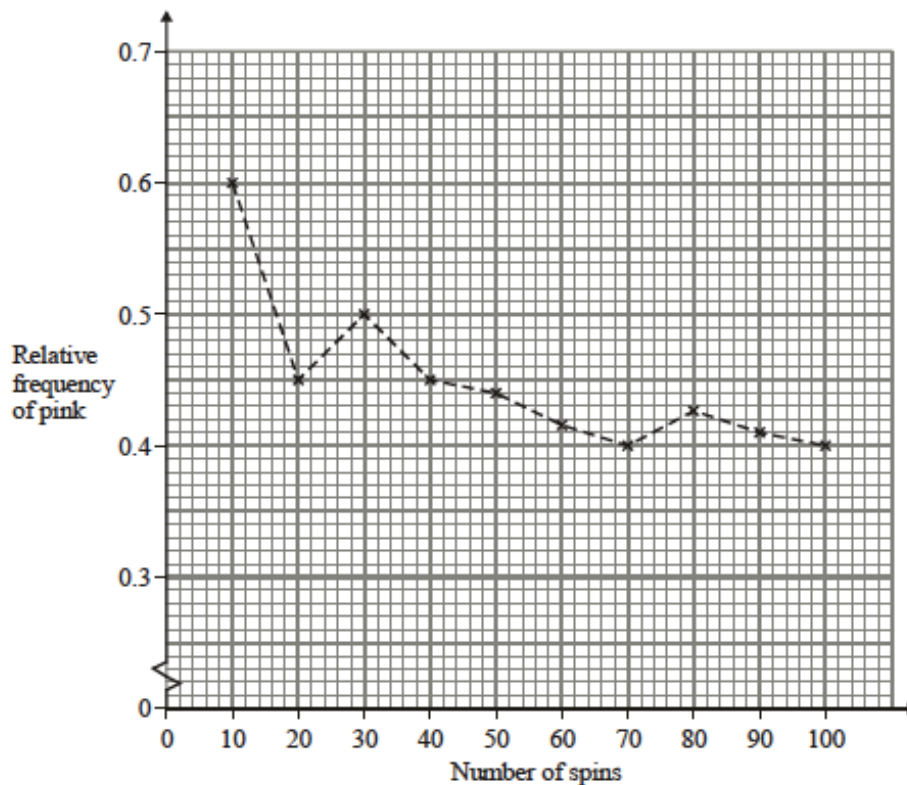
6.

Kali has a spinner with coloured sections of equal size.

She wants to know the probability that her spinner lands on pink.

She spins it 100 times and calculates the relative frequency of pink after every 10 spins.

Her results are shown on the graph.



- (a) Use the graph to calculate the number of times that the spinner landed on pink
- (i) after the first 10 spins, (2)
  - (ii) after the first 50 spins. (2)
- (b) From the graph, estimate the probability of the spinner landing on pink. (1)
- (c) Kali's results confirm that her spinner is fair. The spinner has five equal sections.
- (i) How many sections are pink? (1)
  - (ii) Kali spins the spinner two more times. What is the theoretical probability that the spinner lands on pink both times? (2)
- (Total 8 marks)

7.

$y$  is inversely proportional to  $x$ .  
When  $y = 16.5$ ,  $x = 20$

(a) Find an equation connecting  $y$  and  $x$ .

(3)

(b) Find the value of  $x$  when  $y = 75$

(2)


(Total 5 marks)

8.

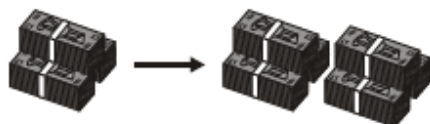
John has £2000 to invest. He sees this advert.

**SureFire Investments**

Don't see your money  
go up in smoke!



**Double your money in 10 years!**



The average annual growth of our investment  
account is 7.2%

Will John double his money in ten years with SureFire Investments?  
You **must** show your working.

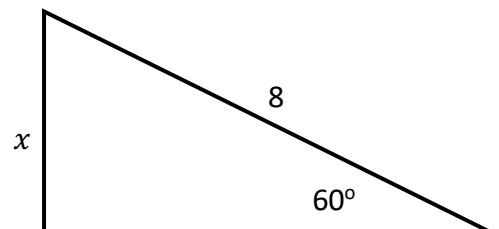
(Total 4 marks)

9.

**Non-calculator**

Find the exact value of  $x$  in the right-angled triangle  
below.

(Total 4 marks)



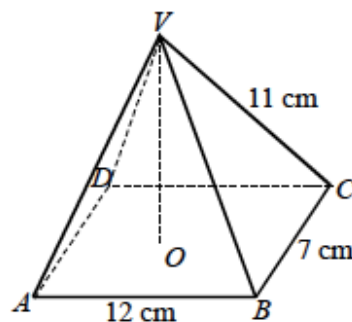
10.

$VABCD$  is a right pyramid on a rectangular base.

$VA = VB = VC = VD = 11$  cm.

$OA = 12$  cm and  $BC = 7$  cm.

$VO$  is the perpendicular height.



not drawn accurately

Calculate the angle between the edge  $VB$  and the base  $ABCD$ .

(Total 5 marks)