Addvance Maths.com

year 9

Topics 1-9
Practice Exam

Mark Scheme and revision:
addvancemaths.com/year9

Name:		
Teacher:		
Score:	/75	%

Instructions

- Use black ink or ball-point pen.
- Answer all the questions.
- Answer questions in the spaces provided.
- You must show all your working out.
- You **may** use a calculator.
- You will need: **ruler, protractor, pencil, compass**

Time: 1 Hour

Information

- The marks for each question are shown in brackets.
- The total marks available for this exam is 75.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

1. Expand and simplify the following.

(a) $-2x(x+5)+(5-x)(x+3)$

..... (2)

(b) $13b(2a+c)+b-2(3a+4c)$

..... (2)

2. Factorise the following expressions.

(a) x^2-x-56

..... (2)

(b) b^2-25

..... (2)

3. Donald took a loan of £40,000.

For the first 3 years, he paid 3% compound interest p.a. For the next 3 years, he paid 2% compound interest p.a.

Calculate how much interest he paid after 6 years. Give your answer to the nearest pound.

..... (3)

4. Sally's monthly salary increased by 20% in 2020 and by 15% in 2023.

She now earns AED 25,000 per month.

Calculate her monthly salary before 2020. Give your answer to the nearest dirham.

..... (3)

5. Solve the following equations. Give your answer as a simplified fraction where appropriate.

(a) $\frac{8+x}{2} - 5x = 3$

..... (3)

(b) $12x = \frac{18+x}{12} - \frac{x-4}{7}$

..... (4)

6. Make x the subject of the following formulas.

(a) $4t = 3x + 2v - 3$

..... (2)

(b) $-t = \dfrac{9x + 4v}{3}$

..... (3)

(c) $(3x + 4v)^2 = \dfrac{3t - 4}{4}$

..... (4)

7. 30 students in a class attempted an exam. Their scores are shown in the frequency table below.

Score, s	Frequency
$0 < s \leq 10$	1
$10 < s \leq 20$	5
$20 < s \leq 30$	9
$30 < s \leq 40$	12
$40 < s \leq 50$	3

(a) Identify the modal class of the frequency table.

..... (1)

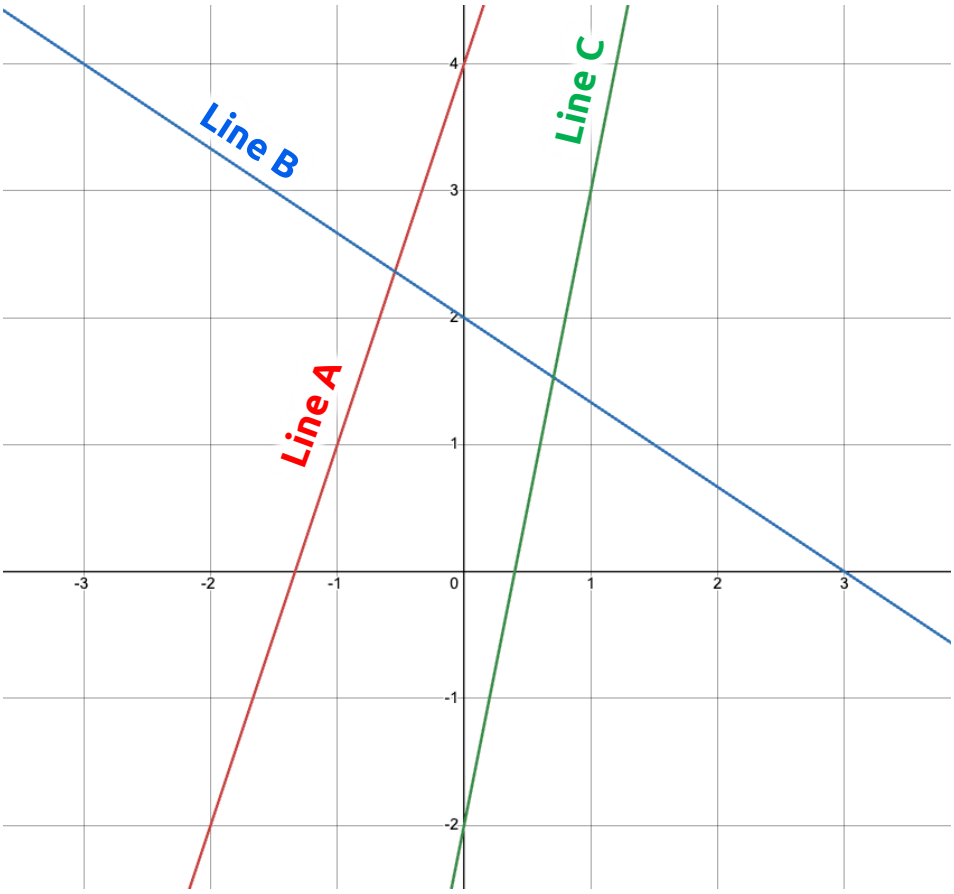
(b) Estimate the mean score. Give your answer to 2 decimal places.

..... (4)

(c) Estimate the median score.

..... (1)

8. 3 lines are shown on the graph below.



(a) Determine the equation of each line. Give your answer in the form $y = mx + c$.

Line A: .....

Line B: .....

Line C: ..... (6)

(b) For the equation $y = 2x - 2$, complete the table of values and construct its graph for values of x from 0 to 3.

x	0	1	2	3
y				

(3)

(c) There are two equations for lines below.

Line 1	**Line 2**
$y = -2x + 4$	$y = 5x + 4$

Chose true or false for the following statements.

	True	False
(i) Both lines intersect the y-axis at the same point.	◯	◯
(ii) Line 2 slopes downwards.	◯	◯
(iii) Line 2 has a higher gradient than line 1.	◯	◯

(3)

(d) Calculate the midpoints of the lines joining the following pairs of points.

(i) (20,45) and (30,65)

..... (2)

(i) (6,9) and (-2,4)

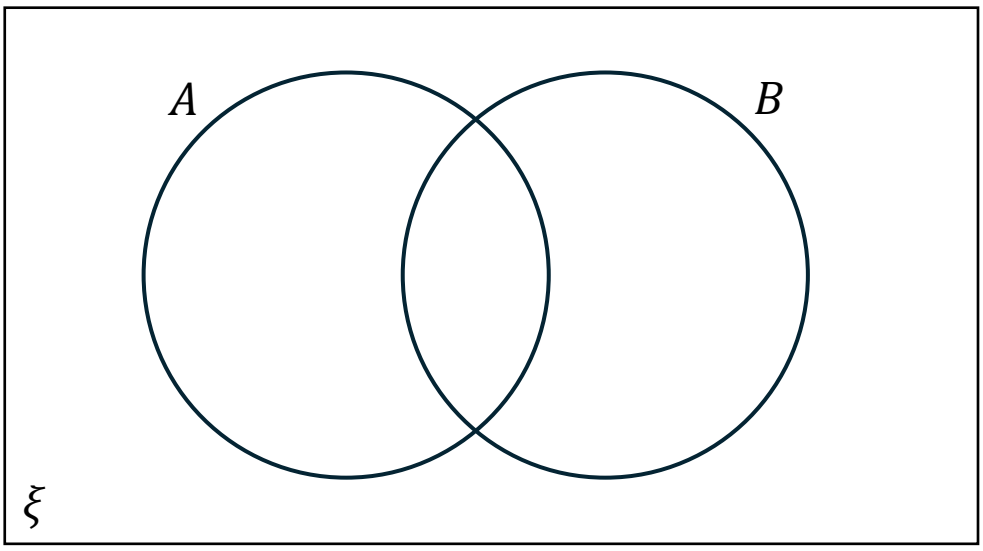
..... (2)

9. $\xi = \{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15\}$

$A =$ Multiples of 2

$B =$ Multiples of 3

(a) Complete the Venn diagram below.



(3)

(b) Calculate:

(i) $n(A)$

..... (1)

(ii) $n(A' \cap B)$

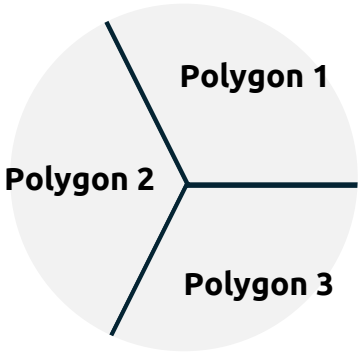
..... (1)

(c) $C =$ Multiples of 5

List the elements of $(A \cap C) \cup (B \cap C)$.

..... (2)

10. (a) Three identical regular n-sided polygons meet at a single point, as shown in the diagram below. Find the value of n.



..... (3)

(b) Determine the size of each interior angle of the following. Give your answer to the nearest whole number if necessary.

(i) An 8-sided regular polygon

..... (3)

(ii) A 11-sided regular polygon

..... (3)

11. (a) The probability of a biased spinner landing on blue is 0.3.

Saif spins the spinner 200 times. Calculate the expected frequency of landing on blue.

..... (2)

(b) John choses a number between 8 and 11, both inclusive.

Noor choses a number between 3 and 5, both inclusive.

Murat multiplies the two numbers.

(i) Complete the sample space diagram below.

	8	**9**	**10**	**11**
3				
4				
5				

(3)

(ii) Calculate the probability of the result being greater than 39.

..... (2)

End of test

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Self reflection

How did you revise for this test? (tick all that you did)

- Reading class notes ○
- Online practice ○
- Doing practice questions ○
- ○ Getting help from your teacher
- ○ Recapping the previous exam
- Study group (with friends) ○
- Textbooks ○
- Watching videos ○

Were these revision techniques useful? (circle your answer)

 Yes

 A bit

 No

How could you revise more effectively next time?

_____

_____

List 3 topics from this test that you are good at, and 3 that need more work.

1.

2.

3.

4.

5.

6.

Failure is the stepping stone to success

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