11 + Entrance Examination

Paper 3

Maths (Non-Calculator)

Calculators are not allowed.

Use scrap paper to do your working and write the final answer on the line at the end of each question.

There are 55 questions here but the exact format of 11+ papers varies from school to school.

Each question in this paper is worth 2 marks. You may find some questions easier than others. This paper is designed to give an idea of the kind of questions that might appear in an 11 Plus exam, and there is no mark scheme.

Full name ....

1. **Work out:**

$$\frac{55555 + 555}{5}$$

_____ (2 marks)

2. **Which one of the following five fractions is not equal to a whole number?**

$$\frac{12}{2} \qquad \frac{123}{3} \qquad \frac{1234}{4} \qquad \frac{12345}{5} \qquad \frac{123456}{6}$$

_____ (2 marks)

3. **What is the largest whole number which divides exactly into 40 and 56?**

_____ (2 marks)

4. **Which of the following is/are correct?**

A	$0 \times 9 + 9 \times 0 = 9$
B	$1 \times 8 + 8 \times 1 = 18$
C	$2 \times 7 + 7 \times 2 = 27$
D	$3 \times 6 + 6 \times 3 = 36$
E	$4 \times 5 + 5 \times 4 = 45$

_____ (2 marks)

5. **The Burj Khalifa skyscraper in Dubai is 830m tall, and the Shanghai Tower skyscraper in Shanghai is 632 m tall.**

   What is the difference in their heights, in metres?

_____ (2 marks)

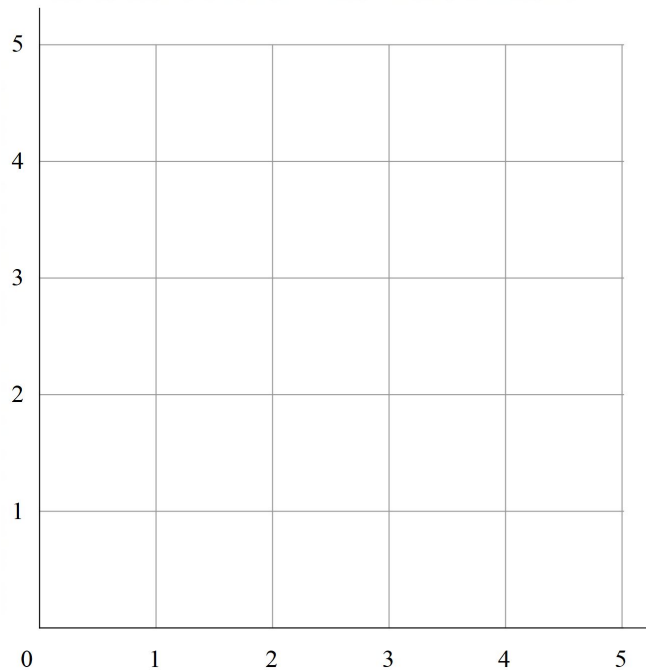6. **Work out 10% of 50 plus 50% of 10.**

_____ (2 marks)

7. **Last night I watched a film which lasted two and a half hours. It finished at ten to nine. What time did it start?**

_____ (2 marks)

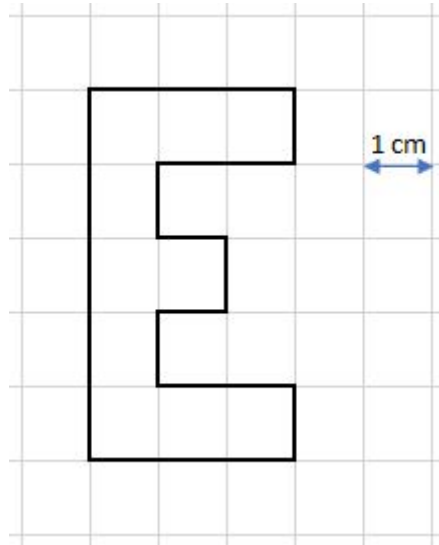8. **Three corners of a square are at the co-ordinates (2,1), (2,3) and (3,2).**

   What are the co-ordinates of the fourth corner?
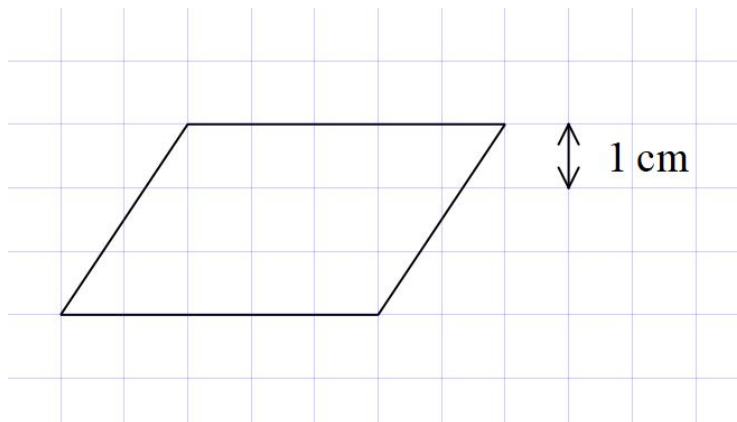
   You may use the grid below to help.

_____ (2 marks)

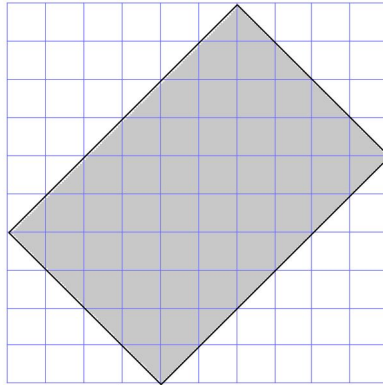9. **The shape below is drawn on a one centimetre grid. Work out the perimeter of the shape.**

1 cm

_____ (2 marks)

10. **The parallelogram below is drawn on a one centimetre grid.**

    Work out the area of the parallelogram.

1 cm

_____ (2 marks)
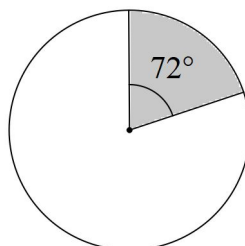
11. What percentage of this grid is shaded?

_____ (2 marks)

12. The table shows the time it took five different pupils to run 100 metres.

    Who was the fastest?

Pupil	Time Taken (seconds)
Adi	14.21
Kalyn	14.22
Sameer	14.37
Jon	14.02
Patsy	14.85

_____ (2 marks)

13. What fraction of this circle has not been shaded?

72°

_____ (2 marks)

14. I weigh two bags of potatoes. One of them weighs $3\frac{1}{2}$ kg and the other weighs 700 g.

What is their total weight in kg?

_____ (2 marks)

15. Harry says that the sum of all the prime numbers between 0 and 10 is a prime number.

Is he correct?

Show how you worked it out.

_____ (2 marks)

16. A road map has a scale of 1 : 50,000

The length of a road on the map is 6 cm.

Work out the length, in kilometres, of the real road.

_____ (2 marks)

17. Liang, Nina and Pascal played a game.

Liang scored 7 more points than Pascal. Nina scored 5 more points than Liang.

They scored 64 points in total. How many points did Pascal score?

_____ (2 marks)

18. You are told that $1234 \times 56 = 69104$

Use this fact to write down the answer to 617×560

_____ (2 marks)

19. The map below shows a part of Europe, and three cities.

You are told that the direct distance between London and Paris is 200 miles.
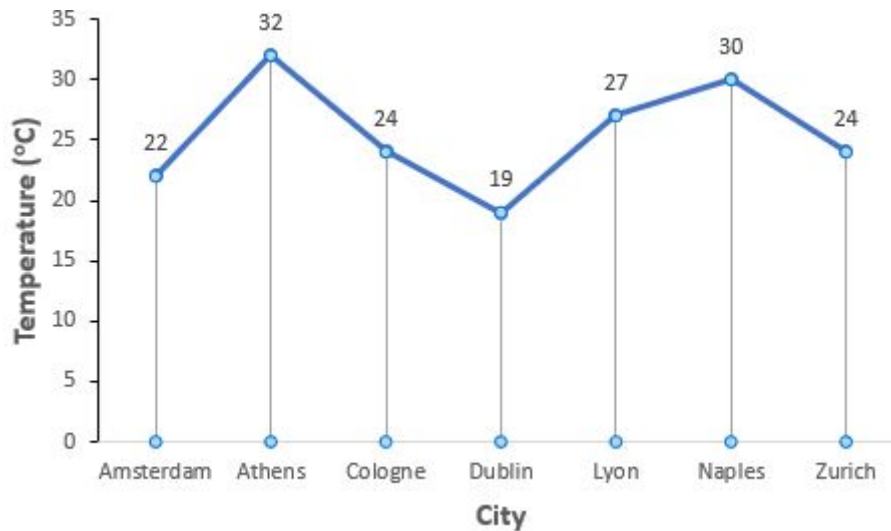
Use the map to estimate the direct distance between Paris and Madrid, in miles.

_____ (2 marks)

20. The graph below shows the maximum temperatures (in $^\circ C$) of seven cities during August last year.

What is the range of the temperatures of these cities?

_____ (2 marks)

21. Here are some properties of numbers.

        A   Odd

        B   Even

        C   Prime

        D   Square

        E   Two digit

Write down a number which has three of these properties, and write down which three properties it has.

_____ (2 marks)

22. Sam wants to buy an Xbox costing £210. His grandmother gives him £84 towards it.

Sam then saves up £7 a week to pay for the rest of the Xbox. How many weeks must he save up for?

_____ (2 marks)

23. Jagdish collects toy cars. He sold $\frac{1}{5}$ of them and now has 36 left. How many toy cars did he have to begin with?

_____ (2 marks)

24. Which of the following is most likely to weigh 4000 g?

Book   Cat   Double Decker Bus   Elephant   Plum
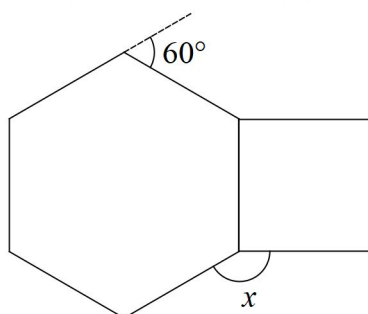
_____ (2 marks)

25. Which of the following is most likely to have a length of 2000 mm?

Lorry   Mouse   Table   School Hall   Whale

_____ (2 marks)

26. The diagram shows a regular hexagon and a square with the same side length as the hexagon. The external angle of the hexagon is $60°$, as shown.

What is the size of the angle *x*?

_____ (2 marks)

27. Last January 5th, the temperature was $-2°C$. On January 6th the temperature had fallen by 5 degrees. On January 7th the temperature had risen by 3 degrees. On January 8th the temperature had fallen by 4 degrees. What was the temperature on January 8th?

_____ (2 marks)

28. The table shows the number of petals on five different types of flowers. The mean number of petals is 10. How many petals are there on the Lily?

Flower	Number of Petals
Buttercup	5
Lily	
Delphinium	8
Marigold	13
Chicory	21

_____ (2 marks)

29. Hussein thinks of a number, multiplies it by 3, subtracts 4, and ends up with the number he first thought of.
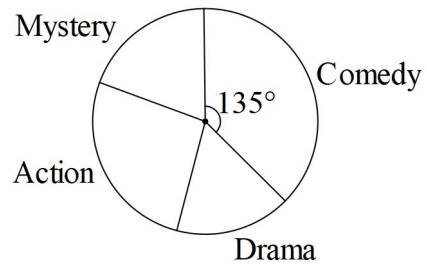
What number did Hussein think of?

_____ (2 marks)

30. I pick one letter from the word MATHEMATICS. What is the probability that I pick a vowel?

_____ (2 marks)

31. The pie chart shows what type of movies a group of 120 boys preferred.

How many of them preferred Comedy?

Mystery

Comedy

135°

Action

Drama

_____ (2 marks)

32. Which is the larger amount : $\dfrac{7}{20}$ **of £15 or 20% of £27 ?**

_____ (2 marks)

33. Use the formula $V = 4r^3$ **to work out *V* when *r* = 2.**

_____ (2 marks)

34. Here's part of a bus timetable, for Bus Number 5 and Bus Number 6.

	6	5	6	5	6	5	6	5
Poole Bus Station	12:10	12:20	12:30	12:40	12:50	13:00	13:10	13:20
Oakdale, Library	12:15	12:25	12:35	12:45	12:55	13:05	13:15	13:25
Canford Heath, The Pilot	12:20	12:30	12:40	12:50	13:00	13:10	13:20	13:30
Canford Heath, Asda	12:28	12:38	12:48	12:58	13:08	13:18	13:28	13:38
Tollerford Road, Steeple Close	-	12:41	-	13:01	-	13:21	-	13:41
Tower Park	12:32	-	12:52	-	13:12	-	13:32	-

From Poole Bus Station, Ria needs to get to the Asda in Canford Heath by quarter past one in the afternoon. What time is the latest bus she should take, and which bus number should she take?

_____ (2 marks)

35. The perimeter of a rectangle is 18 cm and its area is 20 cm².

Work out the length and the width of the rectangle.

_____ (2 marks)

36. Tom's dad is 28 years older than Tom.

5 years ago, Tom's dad was 5 times as old as Tom.

How old is Tom now?

_____ (2 marks)

37. I fill my bath with 300 litres of water. It empties at a rate of 250 ml per second.

How many minutes does it take to empty the bath?

_____ (2 marks)

38. I downloaded 85% of a game. What fraction was yet to be downloaded? Simplify your fraction as far as possible.
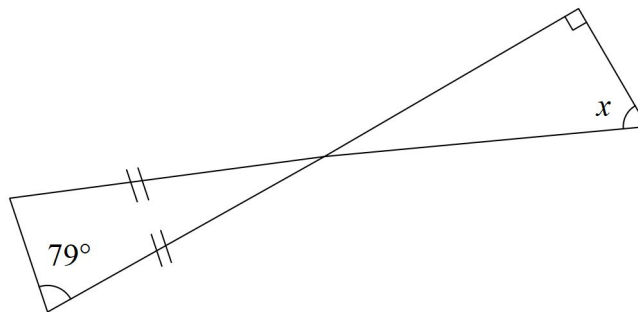
_____ (2 marks)

39. Work out the square of 25 divided by the square root of 25.

_____ (2 marks)

40. After I had spent $\frac{1}{5}$ of my money, I then spent $\frac{1}{3}$ of what I had left. I had £40 left. How much money did I start with?
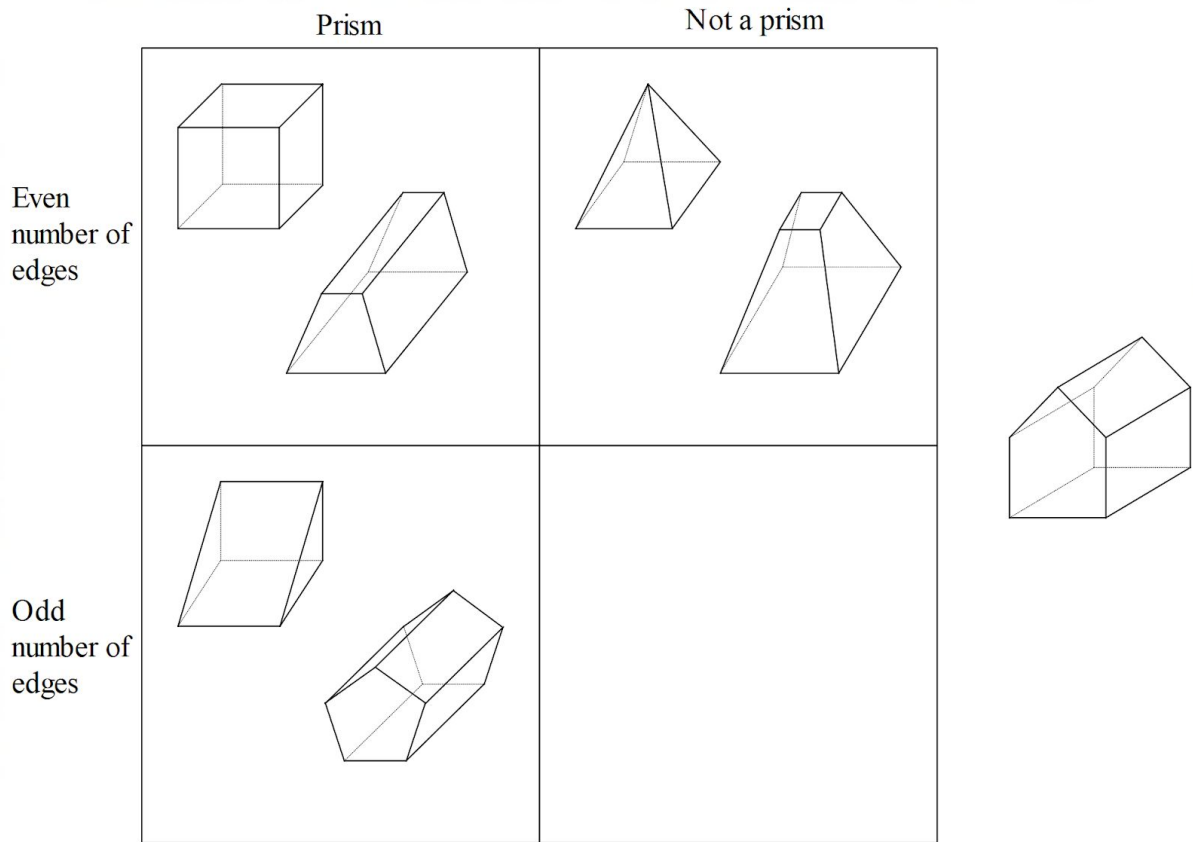
_____ (2 marks)

41. In the diagram below, how big is the angle *x*?

_____ (2 marks)

42. Look at the sorting diagram below.

Draw an arrow to show which box the "house" shape should go into.

	Prism	Not a prism
Even number of edges		
Odd number of edges		

(2 marks)

43. Which of the angles inside the shape below shows a reflex angle?
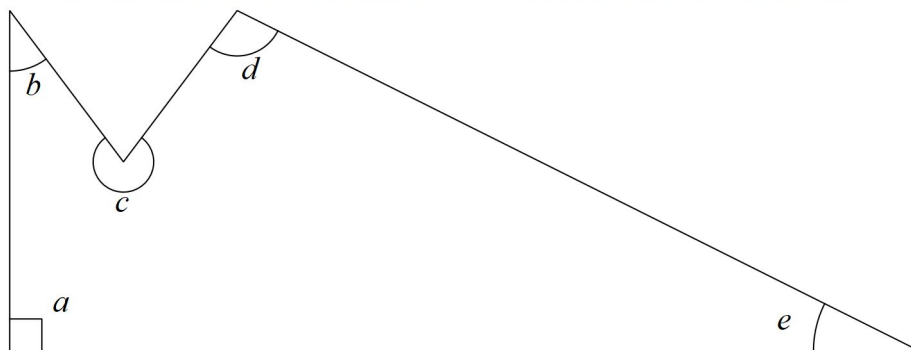
_____ (2 marks)

44. Anushka works as a waitress. This table gives her rates of pay.

Day	Rate of pay per hour
Mon - Fri	£9.20
Weekend	£12.40

Anushka worked for a total of 30 hours last week.

8 of these hours was at the weekend.

Work out how much she got paid last week.

_____ (2 marks)

45. Write down five whole numbers whose mean, median, mode and range is 4.

_____ (2 marks)

46. Shalini works out a sequence of numbers according to this rule : she starts with her first number, adds 8 and then halves the answer to get her second number.

She uses this same rule on her second number to get her third number.

Her third number is 12.

What was her first number?

_____ (2 marks)

47. A plane travels at 200 miles per hour. How many seconds does it take to travel 1 mile?

_____ (2 marks)

48. It is estimated that there are one hundred thousand million galaxies in the observable universe. Each galaxy contains one hundred thousand million stars.

The number of stars altogether can be written as the digit 1 followed by how many 0's?

_____ (2 marks)

49. According to the website *perthmintbullion.com* the world's largest coin weighs 1000 kg.

A British £1 coin weighs 10 g.

What sum of money in £1 coins would weigh the same as the world's largest coin?

_____ (2 marks)

50. Hayley and Jacob were both given the same whole number between 0 and 10.

Hayley squared the number, whilst Jacob increased the number by 100%.

They both reached the same result.

What number were they given?

_____ (2 marks)

51. In September 2017 the Daily Express newspaper reported that a tortoise travelled 6 miles in one day.

What was the average speed of the tortoise, in miles per hour?

_____ (2 marks)

52. What number is halfway between $\frac{1}{5}$ and $\frac{1}{3}$?

_____ (2 marks)

53. In this question assume that £1 is equivalent to 1.5 American Dollars, and also that £1 is equivalent to 2 Australian Dollars.

Anthony bought a bluetooth speaker in New York for 90 American Dollars, and Declan bought a similar bluetooth speaker in Canberra for 100 Australian Dollars.

Whose speaker was the cheapest?

_____ (2 marks)

54. Roughly what year was it one million days ago? Choose your answer from one of the following ;

720 BC   720 AD   1120   1520   1920

_____ (2 marks)

55. There are two taxi companies. One is called Cool Cabs and the other is called Easy Cabs. They use different formulas to work out how much to charge, depending on the number of miles travelled.

Cool Cabs uses this formula :   Fee (in £) = 3.5 $\times$ number of miles + 4

Easy Cabs uses this formula :   Fee (in £) = 4 $\times$ number of miles + 2

For how many miles do both companies charge the same amount of money? Choose your answer from one of the following :

1 mile   2 miles   3 miles   4 miles   5 miles

_____ (2 marks)