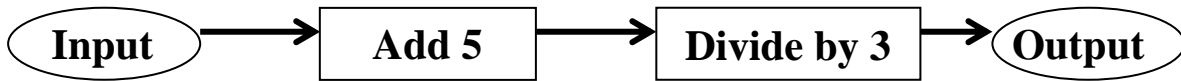




**MATHEMATICS TEST – SPECIMEN QUESTIONS (calculators not allowed)**

**For questions 1 and 2 use the following information:**



1. Find the output when the input is 13

---

2. Find the input when the output is 11

---

**For questions 3 and 4 use the following information:**

SW Herts Heritage Railway			
<i>Bushey</i>	<i>Watford</i>	<i>Chorleywood</i>	<i>Ticket prices:</i>
11:15	11:32	12:02	Adult: £13.60
12:34	12:54	13:25	Child: £6.10
14:45	15:04	15:35	Group (1 adult & 2 children): £23.50

3. What is the shortest journey time from Bushey to Chorleywood?

---

4. How much is saved by buying a Group ticket for 1 adult and 2 children?

---

**For questions 5 and 6 use the following information:**

Susan has bought 100 sweets to split between 12 party bags. She wishes to put the same number of sweets in each party bag.

5. What is the greatest number of sweets she can put in each party bag?

---

6. How many sweets does she have left over?

---



**For questions 7 – 9 use the following number pattern:**

3      10      17      24      31

7. Which of these numbers is a multiple of 8?

---

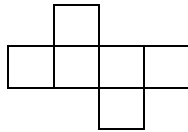
8. What percentage of these numbers are prime?

---

9. If the pattern continues, what is the next number?

---

**For questions 10 – 13 use the following shape:**



*The shape is formed of six 1cm × 1cm squares (not drawn to scale)*

10. What is the perimeter of the shape, in cm?

---

11. What is the order of rotational symmetry of the shape?

---

12. How many lines of reflective symmetry does the shape have?

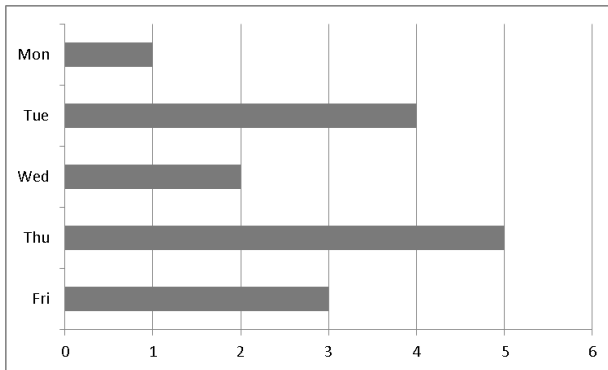
---

13. Can the shape be folded to make a cube?

---



For questions 14 – 16 use the following bar chart:



The bar chart shows the number of absences in a class during a week

14. How many absences were there in total during the week?

---

15. On which day did the mode number of absences occur?

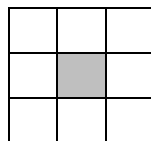
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16. If this information was represented on a pie chart, what angle would be required for Wednesday?

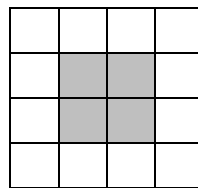
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For questions 17 and 18 use this method of arranging white and grey squares:

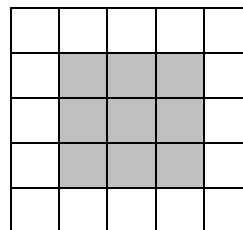
Pattern 1



Pattern 2



Pattern 3



17. A later pattern has 36 grey tiles. How many white tiles does it have?

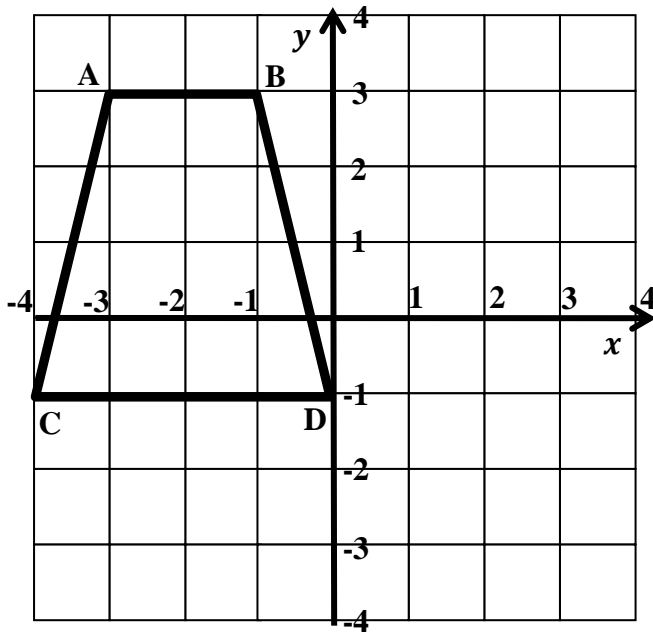
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18. Another later pattern has 36 white tiles. How many grey tiles does it have?

---



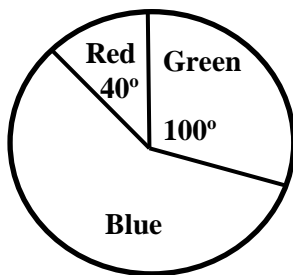
For questions 19 and 20 use this diagram:



19. What type of quadrilateral is shape ABCD?

20. If the shape is reflected in the y-axis, what would the new coordinates of C be?

For Questions 21 and 22 use this diagram:



*Pie chart shows the favourite colours of a class of students  
Diagram not drawn to scale*

21. What is the probability that a student chosen at random prefers Green?  
Give your answer as a fraction in its simplest form.

22. Which name best describes the angle to be drawn for Blue?

- Right-Angle    Obtuse    Reflex    Acute



23. Use this:  $28 \times 751 = 21,028$   
To answer this:  $210.28 \div 28$

---

24. What is the acute angle between the two hands on a clock when the time is 6:40?

---

25. The minimum temperature on Monday is  $5^{\circ}\text{C}$  and it drops by  $6^{\circ}\text{C}$  for each of the next two days. What is the minimum temperature on Wednesday?

---

26. A carton of fruit juice costs 27p. If I only have 2p and 5p coins, in how many different ways can I pay?

---

27. What is 0.28756 rounded to the nearest hundredth?

---

28. Which is larger,  $\frac{13}{15}$  or 85% ?

---

29. David wishes to share 54 treats between his two dogs in the ratio 2:7. What is the difference between the number of treats each dog gets?

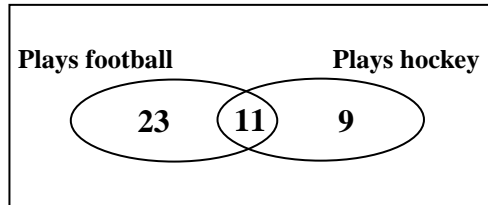
---

30. Raj pours 20 ml of water out of a bottle containing 1.5 litres. How much water is left in the bottle?

---



31. 55 children were asked if they played football or hockey. The diagram below was drawn based on the results.



How many children play neither football nor hockey?

---

32. Which of the following events is the MOST likely?

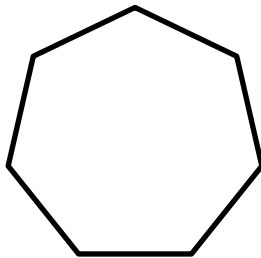
A: A fair coin is thrown and lands on heads.

B: A fair six-sided dice is thrown and lands on a factor of 6.

C: A blue counter is selected at random from a bag containing 3 red counters and 4 blue counters.

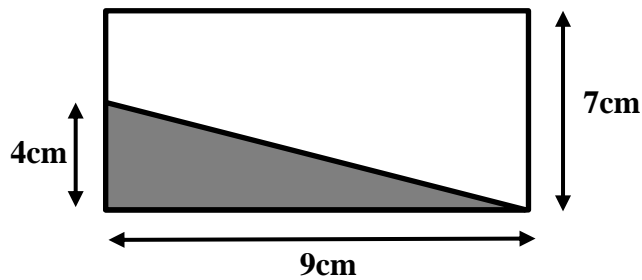
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33. What is the name of this shape?



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34. What is the area of the unshaded region, in  $\text{cm}^2$ ?



*Diagram not to scale*

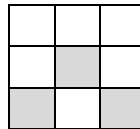
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35. The house numbers on the left hand side of a street are odd numbers. If the first house on the left after a crossroads is number 53 and the second is number 55, what is the number of the seventeenth house on the left after the crossroads?
- 

36. When a group of 5 people meet they all shake each others' hands. How many handshakes will there be in total?
- 

37. How many ways are there of shading two more squares on this shape to produce a pattern with at least one line of reflective symmetry?



38. A metal bucket full of sand weighs 15kg. When two thirds of the sand is poured out the bucket weighs 7kg. What is the weight of the empty bucket in kg?
- 

39. What is the missing number?

$$3 - 16 = -20 - \square$$

---

40. A bag contains 7 orange and 16 purple counters. How many orange counters need to be added to make the ratio of orange to purple counters 3:2?
-



For Questions 41 - 44 use this diagram:

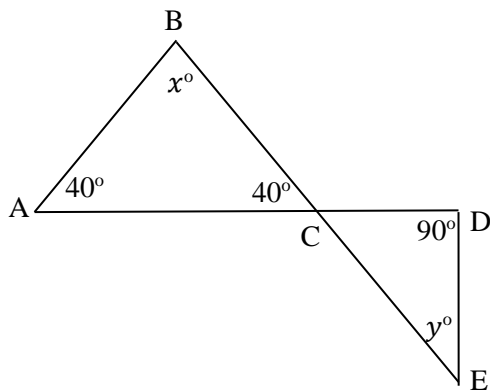


Diagram not drawn to scale

41. Calculate the value of  $x$ .

---

42. Calculate the value of  $y$ .

---

43. What word best describes the sides CD and DE?

parallel      perpendicular      neither of these

---

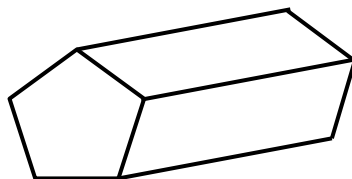
44. What type of triangle is ABC?

---

45. Aivy has 33 pets in total, which are all rabbits, horses or hamsters. She has 7 more rabbits than horses and 3 times as many hamsters as rabbits. How many rabbits does she have?

---

46. Which name best describes the following 3D shape?



prism      pyramid      neither of these

---





47. What do the missing numbers in this calculation add up to?

$$\begin{array}{r}
 \phantom{+} 7 \quad \square \\
 + \quad \square \quad 5 \\
 \hline
 1 \quad 2 \quad 3
 \end{array}$$

48. 3 identical vases and 2 identical candles are to be lined up on a window sill. In how many different ways can they be arranged?

49. Complete the following table about a group of children to work out the total number of girls in the group:

	Right-handed	Left-handed	<b>Total</b>
Boys	19		
Girls		7	
<b>Total</b>		<b>16</b>	<b>60</b>

50. What is the value of ♪ if each row has the total given?

♪	♥	<b>13</b>
☀	♥	<b>17</b>
☀	♪	<b>18</b>



Question	Answer
1	6
2	28
3	47 minutes
4	£2.30
5	8
6	4
7	24
8	60%
9	38
10	14 cm
11	2
12	0
13	Yes
14	15
15	Thursday
16	48°
17	28
18	64
19	Trapezium
20	(4, -1)
21	5/18
22	Reflex
23	7.51
24	40°
25	-7°C

Question	Answer
26	3
27	0.29
28	13/15
29	30
30	1.48 litres or 1480 ml
31	12
32	B
33	(Regular) Heptagon
34	45 cm <sup>2</sup>
35	85
36	10
37	3
38	3kg
39	-7
40	17
41	100
42	50
43	Perpendicular
44	Isosceles
45	8
46	Prism
47	12
48	10
49	32
50	7