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## Upper Primary Division

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### Questions 1 to 10, 3 marks each

1. What fraction of this rectangle is shaded?



- (A) one-fifth                      (B) two-fifths                      (C) two-thirds  
(D) one-third                      (E) three-fifths
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2. Which of the following numbers is closest to zero?

- (A) 0.03      (B) 0.048      (C) 0.009      (D) 0.005      (E) 0.02
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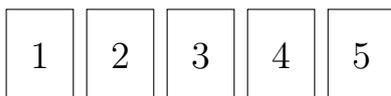
3. A 737 passenger aircraft has 3 seats on each side of a centre aisle in each row. It is designed to carry 150 passengers. How many rows of seats does it have?

- (A) 50      (B) 37      (C) 33      (D) 32      (E) 25
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4. Alice has two 50c coins, three 20c coins and eight 5c coins. David has four 20c coins and six 10c coins. How much more money does Alice have than David?

- (A) 40c      (B) 60c      (C) 80c      (D) \$1.40      (E) \$2.00
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5. What is the difference between the largest and smallest 5-digit numbers which can be made from rearranging the 5 digit cards below?



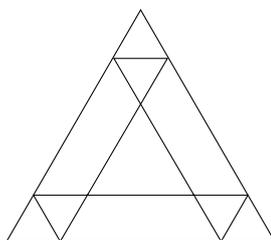
- (A) 41 967      (B) 41 976      (C) 44 444      (D) 42 024      (E) 41 076
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6. At the supermarket, a regular packet of chips is 75 g. A packet of chips on special is advertised at one-third extra. How many grams does the special packet have?

(A) 50            (B) 78            (C) 100            (D) 125            (E) 150

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7. How many triangles are in the following picture?



(A) 9            (B) 10            (C) 13            (D) 14            (E) 17

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8. Jan doubles a number then adds two. Then she halves that number and subtracts two. Her final answer is six. What was her original number?

(A) 1            (B) 6            (C) 7            (D) 14            (E) 16

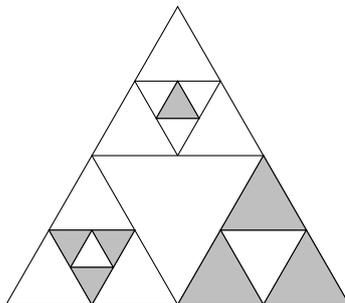
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9. On the number line, where should the fraction  $\frac{1}{3}$  be placed?



- (A) between 0 and 0.3  
(B) between 0.3 and 0.4  
(C) between 0.4 and 0.7  
(D) between 0.7 and 0.8  
(E) between 0.8 and 1
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10. Each triangle in the diagram is equilateral. What fraction of the largest triangle is shaded?



- (A)  $\frac{1}{4}$       (B)  $\frac{15}{64}$       (C)  $\frac{1}{3}$       (D)  $\frac{3}{16}$       (E)  $\frac{7}{32}$

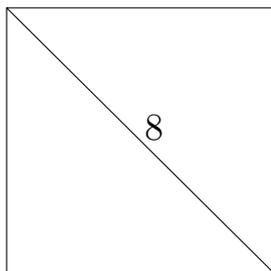
**Questions 11 to 20, 4 marks each**

11. In the number sentence below, three of the digits are missing, as shown by the boxes. If the number sentence is correct, what is the sum of the three missing digits?

$$\square 2 \square - 76 = 3 \square 7$$

- (A) 7      (B) 8      (C) 10      (D) 11      (E) 17

12. In the square shown, the length of the diagonal is 8 cm. What is the area of the square?



- (A)  $28 \text{ cm}^2$       (B)  $32 \text{ cm}^2$       (C)  $49 \text{ cm}^2$       (D)  $64 \text{ cm}^2$       (E)  $81 \text{ cm}^2$

- 13.** A bus leaves a bus stop at 10:35 am and then stops at 4 other bus stops. If neighbouring stops are 10 minutes apart and the bus remains at each stop for 3 minutes, at what time does the bus arrive at the last stop?

(A) 11:11 am (B) 11:14 am (C) 11:21 am (D) 11:24 am (E) 11:27 am

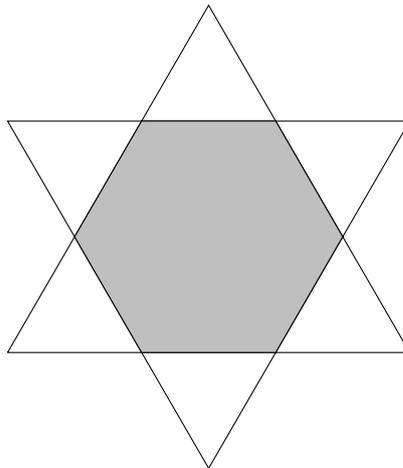
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- 14.** A muffin recipe which makes 12 muffins requires  $\frac{2}{3}$  of a cup of milk. How many muffins can be made using 18 cups of milk?

(A) 90 (B) 108 (C) 144 (D) 216 (E) 324

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- 15.** Two identical equilateral triangles, each with an area equal to  $36 \text{ cm}^2$ , are placed one on top of the other so that the overlap forms a regular hexagon.



What is the area of the hexagon?

(A)  $18 \text{ cm}^2$  (B)  $20 \text{ cm}^2$  (C)  $24 \text{ cm}^2$  (D)  $30 \text{ cm}^2$  (E)  $36 \text{ cm}^2$

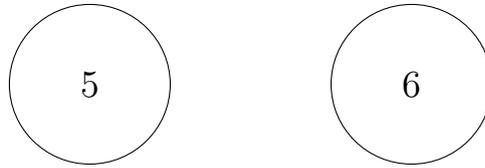
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- 16.** A ten-sided dice (numbers 0–9) and a six-sided dice (numbers 1–6) are thrown at the same time. What is the chance of displaying a total of 6?

(A) one in ten (B) one in eight (C) one in six  
(D) one in five (E) one in two

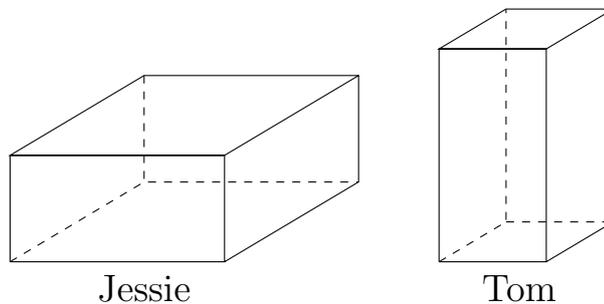
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17. Each of the faces of 2 discs has a different whole number on it. The numbers on two of the faces are shown.



If the discs are tossed, the possible sums of the numbers showing are 10, 11, 12 and 13. What is the product of the two numbers that are on the other side of these two discs?

- (A) 24            (B) 25            (C) 30            (D) 32            (E) 35
18. A school builds a raised vegetable patch in its garden by joining four panels to form an open-ended prism and filling it with soil. Each of the thin plastic panels has sides of length 40 cm and 80 cm. Jessie wants to stand the panels on their long side and Tom wants to stand them on their short side as shown.



Which statement is true?

- (A) It is impossible to calculate the volume of soil needed to fill the vegetable patch.  
(B) It is impossible to compare the volumes of soil needed to fill the vegetable patch.  
(C) Both vegetable patches need the same volume of soil.  
(D) Jessie's vegetable patch needs more soil than Tom's.  
(E) Tom's vegetable patch needs more soil than Jessie's.

19. Aditya's dad is one year older than his mum and next year the product of his parents' ages will be over 1000 for the first time. What is the product of their ages now?

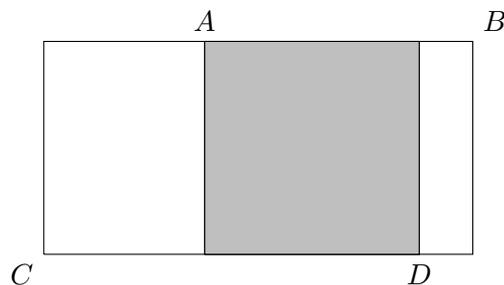
(A) 930      (B) 961      (C) 992      (D) 995      (E) 999

20. Jake and Joe wanted to buy the same magazine. Jake needed \$2.80 more to buy it, while Joe needed \$2.60 more. So they put their money together and bought the magazine. They had \$2.60 left. How much was the magazine?

(A) \$10      (B) \$9      (C) \$8      (D) \$7      (E) \$6

**Questions 21 to 25, 5 marks each**

21. There is a shaded square inside a rectangle as shown. From  $A$  to  $B$  is 6 cm and from  $C$  to  $D$  is 8 cm. What is the perimeter of the large rectangle?

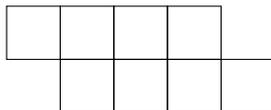


(A) 28 cm      (B) 27 cm      (C) 26 cm      (D) 25 cm      (E) 24 cm

22. Karen's class and Jacqui's class are sharing some apples donated by a local farmer and everyone in each classroom will have 6 apples. If Karen's class shared all the apples, each student would have 10 apples. If Jacqui's class shared all the apples, how many apples would each student in the class have?

(A) 5      (B) 8      (C) 10      (D) 12      (E) 15

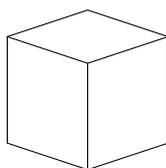
23. Eight  $1 \times 1$  square tiles are laid to form a shape as shown.



Two more  $1 \times 1$  tiles are added, so that at least one side of each new tile is shared with a side of the original shape. Several different perimeter lengths are now possible. What is the sum of the shortest and longest possible perimeters of the modified shape?

- (A) 28            (B) 30            (C) 32            (D) 34            (E) 36

24. On a special cubic dice the numbers 1, 2, 3, 4, 5 and 6 are on the faces: 1 is on the face opposite 2, 3 is on the face opposite 4, and 5 is on the face opposite 6.



Each vertex is given a **vertex number**, which is the sum of the numbers on the three faces that form the vertex. If I subtract the smallest vertex number from the largest vertex number, what number will I get?

- (A) 1            (B) 3            (C) 5            (D) 6            (E) 7

25. A number is formed by writing the numbers 1 to 30 in order as shown.

12345678910111213.....2930

Simeon removed 45 of these 51 digits leaving 6 in their original order to make the largest 6-digit number possible. What is the sum of the digits of this number?

- (A) 33            (B) 38            (C) 41            (D) 43            (E) 51

**For questions 26 to 30, shade the answer as a whole number from 0 to 999 in the space provided on the answer sheet.**

**Question 26 is 6 marks, question 27 is 7 marks, question 28 is 8 marks, question 29 is 9 marks and question 30 is 10 marks.**

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**26.** Dried dog food is available in three sizes: 1 kg bags, which cost \$6; 3 kg bags, which cost \$15; and 8 kg bags, which cost \$25. What is the smallest number of bags you can buy such that the average price per kilogram is exactly \$4?

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**27.** In how many ways can three different numbers be selected from the numbers 1 to 12, so that their sum can be exactly divided by 3?

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**28.** Adam, Barney and Joe carry 999 books out of the library. Adam works for 3 hours, Barney works for 4 hours and Joe works for 5 hours. They work at different speeds, with Adam carrying 5 books for every 3 books Barney carries and every 2 books Joe carries. How many books did Adam carry?

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**29.** Find the largest 3-digit number, with no two digits the same and with its digits in ascending order, which when multiplied by 5 has its digits in descending order?

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**30.** A hockey game between two teams is ‘relatively close’ if the number of goals scored by the two teams never differ by more than two. In how many ways can the first 12 goals of a game be scored if the game is ‘relatively close’?

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