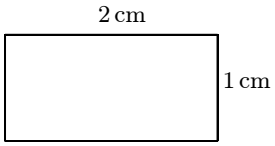
JUNIOR DIVISION

Questions 1 - 10, 3 marks each

1. The value of $176 + 21$ is

(A) 187 (B) 188 (C) 197 (D) 207 (E) 196

2. The perimeter of the rectangle, in centimetres, is

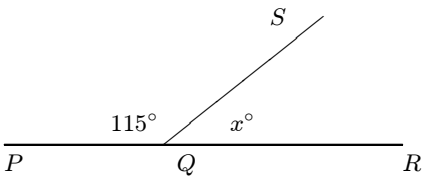


(A) 3 (B) 4 (C) 5 (D) 6 (E) 8

3. Every chair in the classroom has 4 legs. If there are 21 chairs, how many chair legs are there?

(A) 84 (B) 25 (C) 80 (D) 94 (E) 44

4.



In the diagram, PQR is a straight line. The value of x is

(A) 65 (B) 75 (C) 55 (D) 45 (E) 35

5. The value of $\frac{4}{5}$ is closest to

(A) 0 (B) 1 (C) 2 (D) 3 (E) 4

6. Kim has \$103 in a Westpac bank account and she performs the following transactions:

a \$65 withdrawal
a \$79 deposit
a \$89 withdrawal

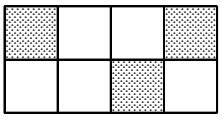
Kim's new balance is

(A) \$38 (B) \$28 (C) \$18 (D) \$0 (E) \$158

7. The winner of the cycling race from Young to Temora completed the journey in 2 hours and 35 minutes. If she arrived in Temora at 1:10 pm, she must have left Young at

(A) 10:35 am (B) 11:25 am (C) 10:45 am (D) 9:35 am (E) 9:45 am

8. What fraction of the rectangle is shaded?



(A) $\frac{1}{2}$ (B) $\frac{3}{4}$ (C) $\frac{3}{8}$ (D) $\frac{5}{8}$ (E) $\frac{1}{3}$

9. What is the largest number of magazines which cost \$1.50 each that you can buy with \$10?

(A) 3 (B) 5 (C) 7 (D) 6 (E) 4

10. Anne takes 70 paces to walk 50 m. The number of paces Anne takes to walk 3.5 km is

(A) 2500 (B) 4900 (C) 3500 (D) 3750 (E) 5000

Questions 11 - 20, 4 marks each

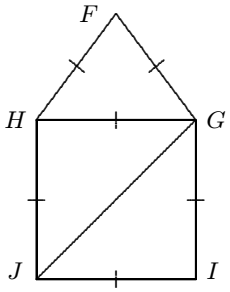
11. Which of the following represents 360 as a product of its prime factors?

(A) $3^3 \times 2^2 \times 5$ (B) $2^3 \times 3^2 \times 5$ (C) $2^2 \times 9 \times 10$ (D) $2^3 \times 5 \times 9$ (E) $2^5 \times 3^2$

12. Martin's weight a year ago was $\frac{3}{4}$ of his present weight. If he put on 16 kg in this last year, what is his weight, in kilograms, now?

(A) 28 (B) 36 (C) 42 (D) 49 (E) 64

13. An equilateral triangle FGH sits on top of a square $GIJH$ as shown. The size of the angle FGJ is

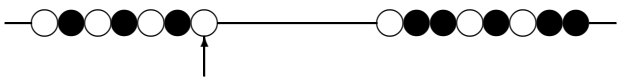


(A) 60° (B) 105° (C) 150° (D) 90° (E) 75°

14. A farmer buys a truckload of 30 bales of hay to feed his cattle. He intends to feed his cattle two thirds of a bale each day to supplement their diets. For how many days will this load last?

(A) 36 (B) 39 (C) 42 (D) 45 (E) 48

15. Some beads are arranged on a line as shown. Starting with the bead at the head of the arrow, how many beads must be moved from left to right so that the fraction of the beads on the left that are black is equal to the fraction of the beads on the right that are white?



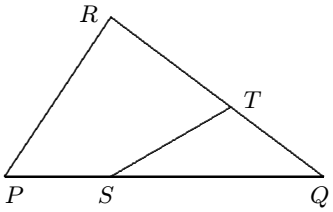
(A) 4 (B) 3 (C) 2 (D) 1 (E) 0

16. The fraction $\frac{1}{4}$ is tripled by adding the same number to both numerator and denominator. That number is

(A) 2 (B) 3 (C) 5 (D) 8 (E) 9

17. In the triangle PQR, $\angle PST$ is equal to 146°, $TS = TQ$ and $PQ = QR$. The size of $\angle PRQ$ is

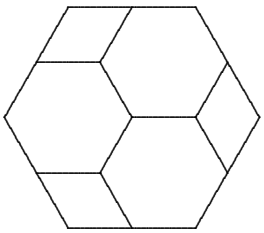
(A) 54° (B) 68° (C) 73° (D) 75° (E) 80°



18. Jean had an unusual experience while shopping; she found that every time she bought something, it took exactly 20% of the money she had in her purse. She bought three items, and finished her shopping with \$64 in her purse. How many dollars did she have at the beginning of her shopping?

(A) 160 (B) 145 (C) 130 (D) 125 (E) 120

19. A regular hexagon is divided into three smaller regular hexagons and three equal rhombi as shown. If the area of the larger hexagon is $360\,\text{cm}^2$, then the area of each rhombus, in square centimetres, is



(A) 60 (B) 30 (C) 75 (D) 15 (E) 45

20. Sam has 6 sticks, all of different lengths, from which he can make an equilateral triangle with two sticks along each side. Five of his 6 sticks measure 25, 29, 33, 37 and 41 centimetres. How many different lengths are possible for his 6th stick?

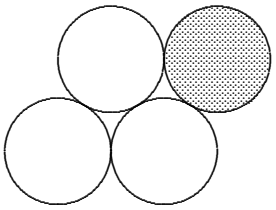
(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

Questions 21 - 30, 8 marks each correct response, 0 marks each incorrect response, 3 marks each no response, 30 marks minimum

21. The school canteen packs 37 lamingtons into bags of 3 or 4 so that there is no wastage. The maximum number of bags containing 4 lamingtons is

(A) 9 (B) 4 (C) 8 (D) 5 (E) 7

22. Four 10 c coins lie on a table as shown. Keeping in contact with the other three coins, the shaded coin is rolled around the other three coins until it returns to its starting place. Through what angle does the shaded coin turn, on its axis, in rolling once around the other three coins?



(A) 360° (B) 540° (C) 720° (D) 900° (E) 1080°

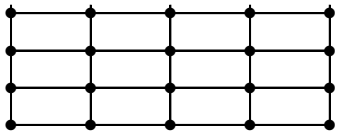
23. The only information that an electronic watch displays is hours as a 2-digit number and minutes as a 2-digit number. What is the total time in minutes that the digit 2 was visible on the face of the watch from 15:00 to 16:30 during an afternoon?

(A) 12 (B) 15 (C) 24 (D) 27 (E) 30

24. John tells the truth on Monday, Tuesday, Wednesday and Thursday. He lies on all other days. Dieter tells the truth on Monday, Friday, Saturday and Sunday. He lies on all other days. One day they both said, 'Yesterday I lied'. The day they said that was

(A) Monday (B) Wednesday (C) Thursday
(D) Friday (E) Saturday

25. How many rectangles are there in this grid, where vertices are points of the grid and the edges are lines of the grid?

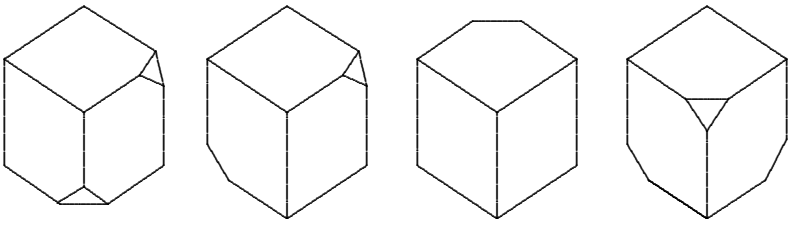


(A) 72 (B) 36 (C) 55 (D) 48 (E) 60

26. A six digit number is represented by $1vwxyz$, where 1(one), v, w, x, y, z are its digits. If this number is multiplied by 3, the result is $vwxyz1$. The value of $v + w + x + y + z$ is

(A) 22 (B) 23 (C) 24 (D) 25 (E) 26

27. Some corners are cut off four cubes. Afterwards, only two of the solids formed are the same shape. Which two are they?



P Q R S

(A) P and Q (B) P and R (C) Q and R

(D) P and S (E) Q and S

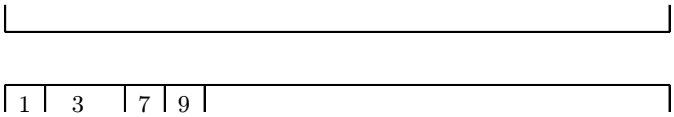
28. The integers 1, 2, 3, . . . , 100 are written on the board. What is the smallest number of these integers that can be wiped off so that the product of the remaining integers ends in 2?

(A) 20 (B) 21 (C) 22 (D) 23 (E) 24

29. The sum of the digits of the number 2004 is 6. How many whole numbers from 1000 to 9999 have 6 as the sum of their digits?

(A) 34 (B) 37 (C) 44 (D) 56 (E) 64

30. The houses in my street are numbered in order by odd numbers on one side and by even numbers on the other side. The system for numbering houses takes into account that one quarter of the houses on my side of the street are on double blocks. For example, my house on a single block is number 1, my next door neighbour's house on a double block is number 3 and the next two houses on single blocks are numbers 7 and 9.



My friend Amanda lives on the other end of the street on a double block in house number 187. The number of houses on my side of the street is

(A) 72 (B) 75 (C) 76 (D) 79 (E) 97