

**Question 1:**

Farmer Mason buys a truckload of 72 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. 72      B. 96      C. 100      D. 104      E. 108
- 

**Question 2:**

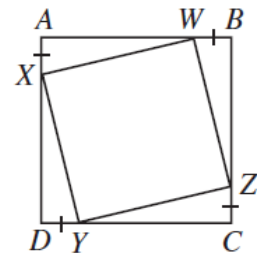
Simon's weight a year ago was 85% of his present weight. If he put on 9kg this last year, what is his weight, in kilograms, now?

- A. 54      B. 56      C. 60      D. 64      E. 85
- 

**Question 3:**

The area of square  $ABCD$  is  $121\text{cm}^2$  and  $AX = BW = CZ = DY = 3\text{ cm}$ .

What is the area, in square centimetres, of square  $WXYZ$ ?



- A. 109      B. 97      C. 88      D. 73      E. 40
- 

**Question 4:**

A train leaves Wellington for Taupo at 11am and another train leaves Taupo for Wellington 40 minutes later. Both travel at a constant speed, taking 3 hours and 30 minutes to complete the journey. At what time will they pass?

- A. 12:45pm    B. 1:00pm    C. 1:05pm    D. 1:15pm    E. 1:25pm
- 

**Question 5:**

Lemonade is poured from a full 1.5 L bottle into an empty glass until both the bottle and the glass are three quarters full. What is the volume of the glass?

- A. 0.5 L      B. 0.75 L      C. 1.125 L      D. 0.6 L      E. 0.4 L
- 

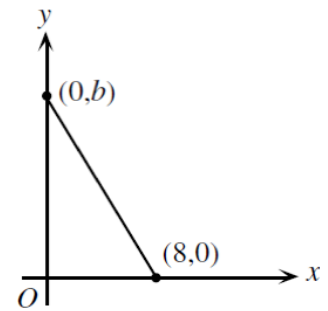
**Question 6:**

5225 is a palindrome because its digits read the same forwards or backwards.  
How many integers between 2013 and 3000 are palindromes?

- A. 0      B. 8      C. 9      D. 10      E. more than 10
- 

**Question 7:**

In the diagram, the line has a gradient of  $-\frac{3}{2}$   
The value of b is



- A. 10      B. 12      C. 6      D. 16      E. 20
- 

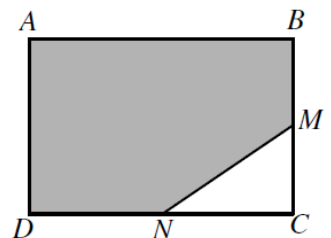
**Question 8:**

In a long distance race a runner ran the first 12 km at 12 km/h and the second 12 km at 6 km/h after he suffered a slight injury. Another runner ran the same route at a constant speed, and took the same length of time. The second runner's speed in km/h was

- A. 8      B. 9      C. 6      D. 12      E. 24
- 

**Question 9:**

ABCD is a rectangle, with M the midpoint of BC and N the midpoint of CD. If CM = 7 cm and NC = 8 cm, what percentage of the area of the rectangle is shaded?



- A. 70      B. 78      C. 80      D. 87.5      E. 75
- 

**Question 10:**

A casino uses tokens. There are only two types of tokens available which are worth \$17 and \$5. How many different combinations of these tokens total \$453?

- A. 3      B. 4      C. 5      D. 6      E. 7
- 

**Question 11:**

The sum of the first 2013 terms of the sequence 1, 2, 3, 4, 1, 2, 3, 4, . . . is

- A. 5031      B. 5130      C. 5040      D. 5030      E. 503
- 

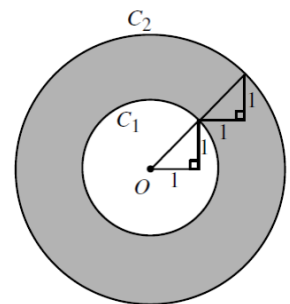
**Question 12:**

In triangle ABC,  $\angle A$  is  $24^\circ$  more than  $\angle B$ , and  $\angle C$  is  $33^\circ$  more than  $\angle B$ .  
The size of  $\angle B$  is

- A.  $20^\circ$       B.  $41^\circ$       C.  $62^\circ$       D.  $46^\circ$       E.  $56^\circ$
- 

**Question 13:**

Circles  $C_1$  and  $C_2$  each have centre O.  
The area of the shaded region is



- A.  $2\pi$       B.  $3\pi$       C.  $4\pi$       D.  $6\pi$       E.  $8\pi$
- 

**Question 14:**

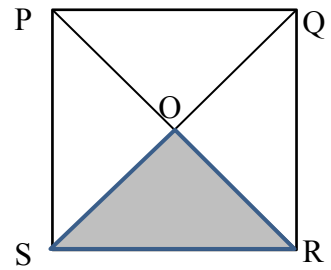
A movie finished at 1:10 pm. If the length of the movie was 1 hour 55 minutes, what time did it start?

- A. 11:15 am      B. 11:45 am      C. 11:00 am      D. 10:45 am      E. 10:30 am

---

**Question 15:**

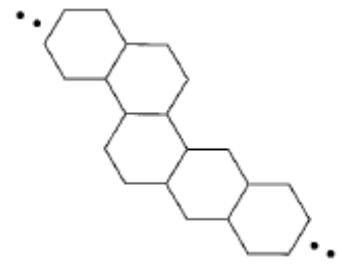
The shaded region has an area of  $16 \text{ cm}^2$ .  
What is the perimeter, in cm, of the square PQRS?



- A. 4      B. 8      C. 16      D. 32      E. 64
- 

**Question 16:**

Hexagonal pavers are laid to form a continuous path.  
The path is bordered by lengths of wood, one  
for each side of a paver not touching another paver.  
If 70 pieces of wood are used, how many hexagonal  
pavers are used?



- A. 15      B. 17      C. 24      D. 25      E. 35
- 

**Question 17:**

Which of the following numbers has exactly four factors?

- A. 110      B. 115      C. 117      D. 121      E. 128
- 

**Question 18:**

The average number of minutes spent on homework per day for a group of Year 11 boys was 70 minutes and 80 minutes per day for a group of Year 11 girls. If there were 20 boys and 30 girls in Year 11 what was the average number of minutes spent on homework for the whole group?

- A. 72      B. 74      C. 75      D. 76      E. 78
- 

**Question 19:**

A  $1 \times 1 \times 1$  cube is cut out of a  $10 \times 10 \times 10$  cube. Then a  $2 \times 2 \times 2$  cube is cut from the remainder followed by a  $3 \times 3 \times 3$  cube and so on. What is the largest cube which can be cut out?

A.  $3 \times 3 \times 3$   
D.  $6 \times 6 \times 6$

B.  $4 \times 4 \times 4$   
E.  $7 \times 7 \times 7$

C.  $5 \times 5 \times 5$

---

**Question 20:**

In the multiplication on the right  
P and \* stand for digits.

$$\begin{array}{r} P \ 7 \ * \ * \\ \times \ 6 \\ \hline * \ 2 \ * \ 8 \ 4 \end{array}$$

P could be

A. 3

B. 4

C. 5

D. 6

E. 7

---

**Question 21:**

If  $x < y < 0 < z$ , which of the following is always true?

A.  $x + y + z > 0$

B.  $(x + y)^2 - z > 0$

C.  $x + y + z^2 > 0$

D.  $x + y - z > 0$

E.  $x + y - z < 0$

---

**Question 22:**

All sides of a rectangular garden which measures 21 m by 34 m are to be fenced. If one metre of fencing costs \$20, what will be the total cost of the fencing?

A. \$20200

B. \$10100

C. \$2200

D. \$1100

E. \$220

---

**Question 23:**

Three sisters shared \$800. The ratio of the amount the oldest received and the total amount shared by the other two sisters was 3:2. The youngest received \$40 less than the middle sister. How much did the youngest receive?

A. \$40

B. \$140

C. \$180

D. \$320

E. \$480

---

**Question 24:**

An operation  $\oplus$  is defined by  $a \oplus b = 3a + 4b$ .  
Find  $x$  if  $x \oplus 7 = 115$ .

- A. 29      B. 34      C. 36      D. 87      E. 108
- 

**Question 25:**

A book has 500 pages numbered 1, 2, 3, ..., and so on. How many times does the digit 1 appear in the page numbers?

- A. 100      B. 176      C. 196      D. 200      E. 300
- 

**Question 26:**

The box of cat food recommends that I feed my cat 1 cup (250 mL) of biscuits each day. The rectangular box has a base of 18 cm by 7 cm and is filled to a depth of 25 cm. The number of days the cat food should last is

- A. 10      B. 12      C. 14      D. 16      E. 18
- 

**Question 27:**

An orange contains fifty fewer calories than a banana. Together one orange and two bananas contain 310 calories. How many calories are there in one banana?

- A. 50      B. 87      C. 100      D. 120      E. 260
- 

**Question 28:**

A circle has a circumference of 5 cm.  
Its area, in square centimetres, is

A.  $\frac{25}{4\pi}$

B.  $\frac{25}{4}$

C.  $\frac{\pi}{25}$

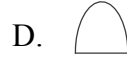
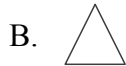
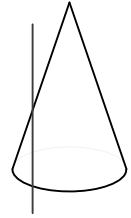
D.  $50\pi$

E.  $25\pi$

---

**Question 29:**

A vertical cut, as shown, is made in a cone. The cross-sectional shape is



---

**Question 30:**

A set consists of fifteen consecutive odd integers.

The median of these fifteen numbers is  $N$ .

What is the greatest number in this set?

A.  $N+7$

B.  $N+13$

C.  $N+14$

D.  $N+15$

E.  $N+16$