F1 Early Summer Assignment: MC 02

1. Estimate $3.27 + 5.73 + 0.44 + 0.59$ by rounding off.
    A. 10
    B. 10.2
    C. 10.5
    D. 10.8

2. $37\,251 \div 6 \approx$
    A. 5 000
    B. 6 000
    C. 7 000
    D. 8 000

3. Which of the following data is exact?
    A. The rainfall was 150 mm yesterday.
    B. There are 1 500 people gathering in a podium.
    C. Two students of the class were absent yesterday.
    D. The height of Walter is 1.6 m.

4. The maximum load of a lift is 1 t. If the average weight of a man is 70 kg, estimate the maximum number of people that the lift can carry.
    A. 14
    B. 15
    C. 16
    D. 17

5. $86\,421\,000 \text{ m}^2 =$
    A. 86.421 km^2
    B. $8.642\ 1 \text{ cm}^2$
    C. $8\,642.1 \text{ km}^2$
    D. $86\,421 \text{ km}^2$

6. The weight of Henry is 76.89 kg (correct to the nearest 0.01 kg). If his weight is expressed correct to the nearest 0.05 kg, his weight is
    A. 76.50 kg.
    B. 76.90 kg.
   C. 76.95 kg.
    D. 77.05 kg.

7. Suppose the distance of one step of Gary is 0.47 m. If he takes 289 steps to walk 1 lap around the playground, the perimeter of the playground is

    A.   134.5 m (correct to the nearest 0.5 m).
    B.   135.5 m (correct to the nearest 0.5 m).
    C.   136.0 m (correct to the nearest 0.5 m).
    D.   136.5 m (correct to the nearest 0.5 m).

8. Which of the following figures has/have the order of rotational symmetry greater than 1?
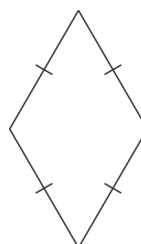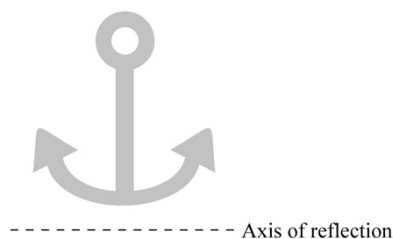
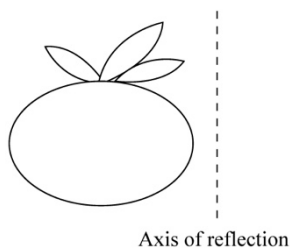   I.   II.   III.
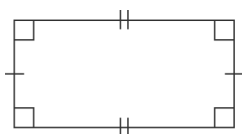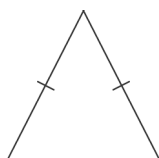
    A.   I only
    B.   I and II only
    C.   I and III only
    D.   I, II and III

9. Which of the following figures would give an image of the same shape, size and direction as the original figure after reflecting along the axis of reflection?
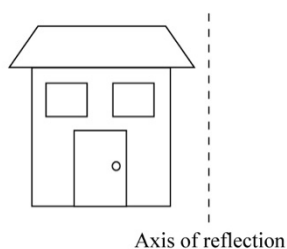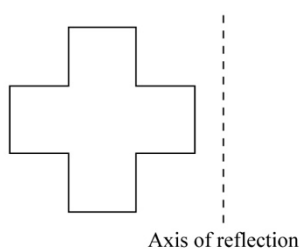
   A.   B.

    Axis of reflection   Axis of reflection

    C.   D.

    Axis of reflection   Axis of reflection

10. Which of the following figures possesses reflectional symmetry but does not possess rotational symmetry?

    A.   Line segment
    B.   Rhombus
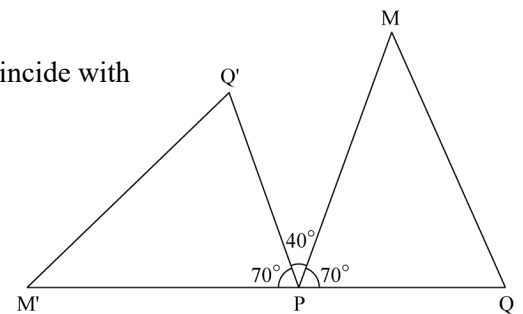   C.   Equilateral triangle
    D.   Isosceles trapezium

11. In the figure, rectangle BCDE is the image of rectangle ABFG after rotation. Which point(s) is/are the possible centre(s) of rotation?
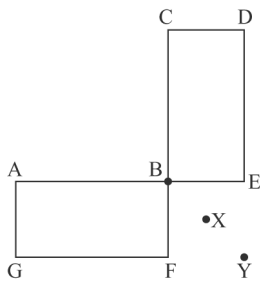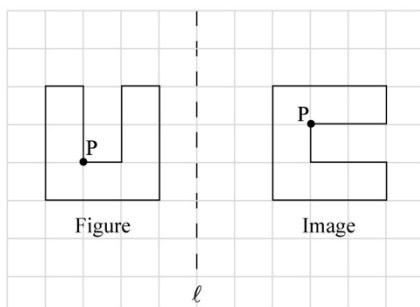
    A. B only
    B. X only
    C. B and X only
    D. B, X and Y

12. In the figure, if ΔMPQ rotating anti-clockwise about point P can coincide with ΔM'PQ', then the angle of rotation is
    A. 40°.
    B. 70°.
   C. 110°.
    D. undetermined.

13.

    Which of the following describes the above transformation correctly?
    A. Reflect along ℓ, and then rotate the image obtained 90° clockwise about point P in its new position.
    B. Rotate 90° anti-clockwise about point P, and then reflect along ℓ.
    C. Rotates 90° clockwise about point P, and then move it 6 steps to the right and 1 step up.
    D. None of the above.

14. Among the capital letters below, how many of them have the number of axes of symmetry exceed its order of rotational symmetry?
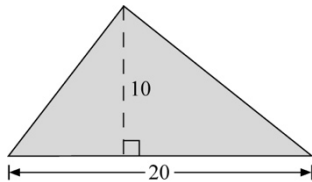
    A D F G I J K

    A. 2
    B. 3
    C. 5
    D. 7

15. Find the area of the shaded region. (Area of 1 square = 1 cm^2)
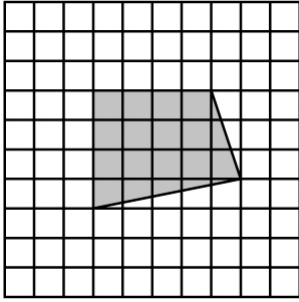
    A.   12 cm^2

    B.   14 cm^2

    C.   16 cm^2

    D.   18 cm^2
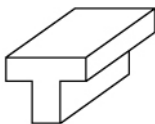
16. Find the area of the triangle below.
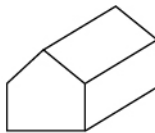

    A.   30 square units

    B.   60 square units

    C.   100 square units

    D.   200 square units
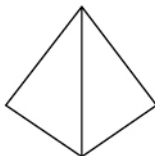
17. Which of the following is not a prism?

    A.   **B.**

    C.   **D.**
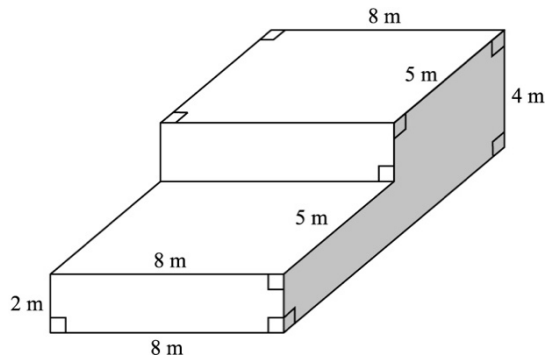
18.

The volume of the above solid is

A.   120 m³.

B.   160 m³.

C.   200 m³.

D.   240 m³.

19. The two parallel sides of a trapezium are 25 cm and 35 cm respectively. If its area is 840 cm², find its height.

A.   20 cm.

B.   24 cm.

C.   26 cm.

D.   28 cm.

20.
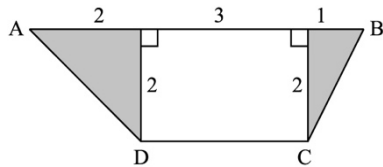
In the above figure, ABCD is a trapezium. How many times of the whole area is the shaded area?

A. $\dfrac{1}{4}$

B. $\dfrac{1}{3}$

C. $\dfrac{3}{8}$

D. $\dfrac{2}{5}$

21.

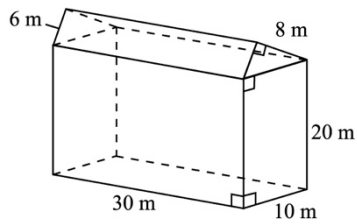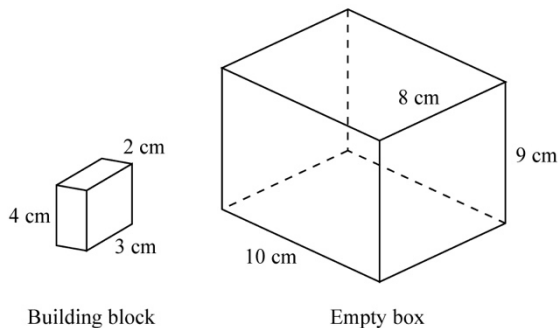The above 3-D solid has a uniform cross-section which consists of a rectangle and a right-angled triangle. Its volume is

- **A.** 720 m³.
- **B.** 6 000 m³.
- **C.** 6 360 m³.
- **D.** 6 720 m³.

22.

Building block

Empty box

How many pieces of the building block of dimensions 2 cm × 3 cm × 4 cm can we pack into the empty box above?

- **A.** 20
- **B.** 25
- **C.** 30
- **D.** 35

23.
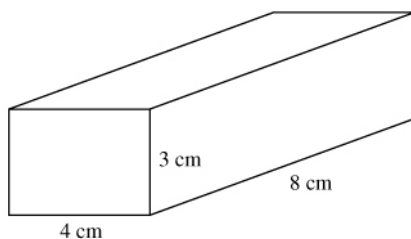
A solid metal cuboid as shown above is melted and recast into 8 identical prisms with square bases. The height of each prism is 3 cm. Find the increase in the total surface area.

- **A.** 60 cm²
- **B.** 104 cm²
- **C.** 120 cm²
- **D.** 128 cm²

24. Water is poured into an aquarium of length 25 cm, width 12 cm and height 30 cm. The speed of filling the water is 5 cm³/s. How long does it take to fill up the aquarium?
    A.   15 min
    B.   25 min
    C.   30 min
    D.   60 min

25. A metal brick can recast into 12 cubes of side 6 cm. How many pieces of metal bricks are needed at least to recast 210 cuboid of length 3 cm, width 4cm and height 5 cm?
    A.   3 pieces
    B.   4 pieces
    C.   5 pieces
    D.   6 pieces

26. A suit is sold at 30% discount with a marked price of $1 200. Find the discount.
    A. $840
    B. $514
    C. $360
    D. $277

27. If the monthly salary of Mr. Chan is 25% higher than that of Mr. Lee, then the monthly salary of Mr. Lee is lower than that of Mr. Chan by
    A.   20%.
    B.   25%.
    C.   75%.
    D.   80%.

28. The expenditure of Johnny is 70% of his income. The rest of his salary is for saving. If the expenditure is $8 400, find the amount of the saving.
    A. $1 764
    B. $1 938
    C. $2 520
    D. $3 600

29. A company engages in transportation and retail. The profit from transportation is more than that from retail by 12%. If the total profit in this year is $4 452 000, what is the profit from transportation?
    A. $1 596 000
    B. $1 848 000
    C. $2 352 000
    D. $2 604 000

30. An alloy contains 79% iron, 20% chromium and 1% carbon by weight. If 1.5 kg of the alloy is carbon, how much chromium has to be added to increase the chromium content to 25%?
    A.   1 kg
    B.   6 kg
    C.   7.5 kg
    D.   10 kg

31. The salary of Gloria has increased by 12% this month. If her total salary of this month and last month was $26 500, find her salary this month.
    A. $12 500
    B. $13 171
    C. $14 000
    D. $14 096

32. A pair of sport shoes is marked up by 25% of its cost. If it is sold at 25% discount, then
    A.   there is no profit or loss.
    B.   the loss rate is 0.625%.
    C.   the loss rate is 6.25%.
    D.   the profit rate is 6.25%.

33. A TV set is marked up by 50% of its cost. If it is sold at 20% discount with a selling price of $9 000, find the profit.
    A. $1 500
    B. $2 250
    C. $3 750
    D. $4 000