# EXAM-STYLE CLASS TEST

| MARKS | DURATION | QUESTIONS |
|---|---|---|
| 45 | 1 hour 10 minutes | 4 |

Name: ..... Class: .....

Date: .....

MARK ____ / 45

## INSTRUCTIONS AND INFORMATION

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

## QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

**1.1** The volume of a cylinder of radius 5 cm and height 10 cm ($\pi \approx 3{,}14$) is ... (1)

**A)** 314 $cm^3$ **B)** 1 570 $cm^3$
**C)** 157 $cm^3$ **D)** 785 $cm^3$

**1.2** The volume of ANY prism equals ... (1)

**A)** length × breadth × height **B)** perimeter × height
**C)** area of the CROSS-SECTION × length **D)** ½ × base × height

**1.3** A cube has a volume of 125 $cm^3$. Its SURFACE AREA is ... (1)

**A)** 25 $cm^2$ **B)** 125 $cm^2$
**C)** 750 $cm^2$ **D)** 150 $cm^2$

**1.4** 1 000 $cm^3$ is the same as ... (1)

**A)** 1 ℓ **B)** 100 mℓ
**C)** 1 mℓ **D)** 10 ℓ

**1.5** If the HEIGHT of a cylinder is doubled and the radius is unchanged, the volume is multiplied by ... (1)

**A)** 2 **B)** 1
**C)** 8 **D)** 4

**1.6** If the RADIUS of a cylinder is doubled and the height is unchanged, the volume is multiplied by ... (1)

**A)** 2 **B)** 8
**C)** 4 **D)** 6

**1.7** The surface area of a closed cylinder is ... (1)

**A)** $2\pi r^2 + 2\pi rh$ **B)** $\pi r^2 h$

**C)** $2\pi rh$ **D)** $\pi r^2 + 2\pi rh$

**1.8** A triangular prism has a cross-section of area $24\ \text{cm}^2$ and a length of $15$ cm. Its volume is ... (1)

**A)** $39\ \text{cm}^3$ **B)** $720\ \text{cm}^3$

**C)** $360\ \text{cm}^3$ **D)** $180\ \text{cm}^3$

**1.9** If ALL the dimensions of a solid are doubled, its VOLUME is multiplied by ... (1)

**A)** $2$ **B)** $8$

**C)** $4$ **D)** $6$

**1.10** A rectangular tank is $40$ cm by $30$ cm by $25$ cm. Its capacity in litres is ... (1)

**A)** $0{,}3\ \ell$ **B)** $30\ \ell$

**C)** $3\ \ell$ **D)** $300\ \ell$

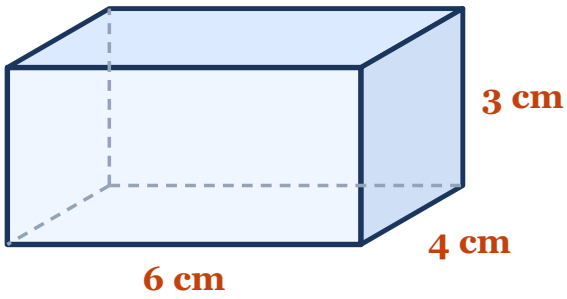
**ANSWER GRID — CIRCLE YOUR ANSWERS FOR QUESTION 1**

| | | | | |
|---|---|---|---|---|
| **1.1** | A | B | C | D |
| **1.2** | A | B | C | D |
| **1.3** | A | B | C | D |
| **1.4** | A | B | C | D |
| **1.5** | A | B | C | D |
| **1.6** | A | B | C | D |
| **1.7** | A | B | C | D |
| **1.8** | A | B | C | D |
| **1.9** | A | B | C | D |
| **1.10** | A | B | C | D |

## QUESTION 2

**[10 MARKS]**

The diagram below shows a rectangular prism.



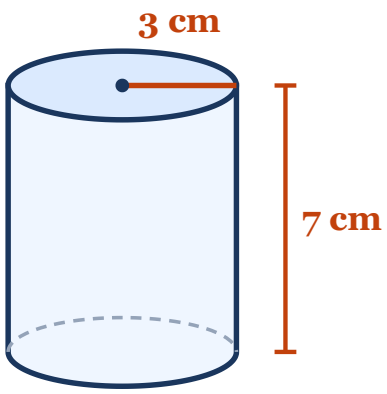

**2.1** Calculate the volume of the prism. **(3)**

**2.2** Calculate the surface area of the prism. **(4)**

**2.3** A cube has sides of 5 cm. Calculate its volume and its total surface area. **(3)**

## QUESTION 3 [13 MARKS]

The diagram below shows a cylinder. Use $\pi \approx 3{,}14$ and round off to TWO decimal places where necessary.




**3.1** Write down the formula for the volume of a cylinder, and explain how it follows from "area of the cross-section × length". (3)

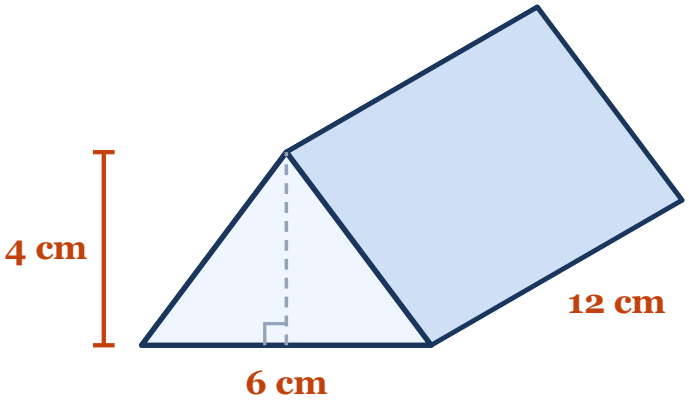
**3.2** Calculate the volume of the cylinder. (3)

**3.3** Calculate the total surface area of the cylinder. (4)

**3.4** The radius of the cylinder is doubled while the height stays the same. Determine by what factor the volume increases, and give a reason. (3)

## QUESTION 4 [12 MARKS]

The diagram below shows a triangular prism.




**4.1** Calculate the volume of the prism. (3)

**4.2** The prism is filled with water. Write down its capacity in millilitres, and then in litres. (3)

**4.3** Explain why the volume of ANY prism can be found by multiplying the area of its cross-section by its length. **(2)**

**4.4** The triangular end is isosceles. Show that each of its two sloping sides is $5$ cm, and hence calculate the total surface area of the prism. **(4)**

**TOTAL: 45 marks**

*This question paper consists of 4 questions.*

© Danemathics — free to print and share for classroom use.