

WA2 Practice Paper

Fraction multiplication, triangle area and volume

30 marks | Suggested time: 45 minutes

Name: Class: Date:

Answer all questions. Show your working for Sections B and C. Calculators are not allowed. Give fractions in their simplest form unless stated otherwise.

School WA topic coverage may differ. These are original practice questions. Worked solutions follow the question paper.

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Section A: Multiple Choice (6 marks)

Choose one option and write its number in the answer space.

1. Find $\frac{3}{4} \times \frac{2}{5}$.

(1) $\frac{3}{10}$

(2) $\frac{5}{9}$

(3) $\frac{6}{9}$

(4) $\frac{3}{5}$

Answer: [1]

2. Find $\frac{2}{3}$ of $1\frac{1}{2}$.

(1) $\frac{1}{2}$

(2) $\frac{2}{3}$

(3) 1

(4) 2

Answer: [1]

3. A triangle has base 12 cm and perpendicular height 5 cm. Find its area.

(1) 17 cm²

(2) 30 cm²

(3) 60 cm²

(4) 120 cm²

Answer: [1]

4. A cube has edge length 4 cm. Find its volume.

(1) 12 cm³

(2) 16 cm³

(3) 48 cm³

(4) 64 cm³

Answer: [1]

5. Which volume is equal to 2.4 litres?

(1) 24 cm³

(2) 240 cm³

(3) 2400 cm³

(4) 24 000 cm³

Answer: [1]

6. A triangle and a rectangle have the same base and perpendicular height. The rectangle has area 48 cm^2 . Find the area of the triangle.

(1) 12 cm^2

(2) 24 cm^2

(3) 48 cm^2

(4) 96 cm^2

Answer: [1]

Section B: Short Answer (12 marks)

Show your working and give units where needed.

7. Calculate $2\frac{1}{4} \times \frac{2}{3}$. Give your answer as a mixed number in its simplest form.

Answer: [2]

8. Calculate $\frac{7}{8} \times 24$.

Answer: [2]

9. Triangle ABC has base AB = 16 cm. Its perpendicular height from C to AB is 9 cm. Find its area.

Answer: [2]

10. A cuboid has volume 360 cm^3 , length 12 cm and width 5 cm. Find its height.

Answer: [2]

11. A tank has an internal base measuring 25 cm by 16 cm. Water is 6 cm deep. Find the volume of water in litres.

Answer: [2]

12. A triangle has area 54 cm^2 and base 12 cm. Find its perpendicular height.

Answer: [2]

Section C: Problem Sums (12 marks)

Show your working and give units where needed.

13. A rectangular tank has internal dimensions 30 cm by 20 cm by 15 cm. It contains water to a depth of 9 cm. (a) Find the volume of water in litres. [2] (b) How many more litres of water are needed to fill the tank? [2]

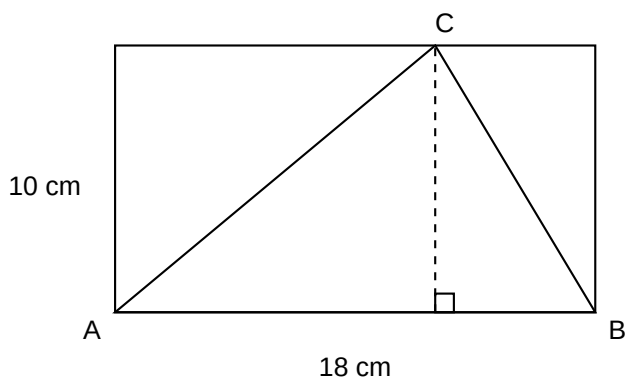
Answer: [4]

14. Lina spent $\frac{1}{3}$ of her money on a bag. She then spent $\frac{1}{4}$ of the remaining money on lunch.

She had \$36 left. (a) What fraction of her original money did she spend on lunch? [2] (b) How much money did she have at first? [2]

Answer: [4]

15. A rectangular card measures 18 cm by 10 cm. Triangle ABC is cut out. Its base AB is the entire 18 cm bottom edge of the card and C lies on the top edge. (a) Find the area of triangle ABC. [2] (b) Each remaining piece of card is used without overlap. Find their total area. [2]



Not to scale

Answer: [4]

End of question paper - Total: 30 marks

WA2 Suggested Worked Solutions

Other valid methods are accepted. Mark allocations are suggested for this practice paper.

Question 1 [1 mark]

Option 1. $\frac{3}{4} \times \frac{2}{5} = \frac{6}{20} = \frac{3}{10}$.

Suggested marking: 1 mark for the correct option.

Question 2 [1 mark]

Option 3. $\frac{2}{3} \times \frac{3}{2} = 1$.

Suggested marking: 1 mark for the correct option.

Question 3 [1 mark]

Option 2. Area = $\frac{1}{2} \times 12 \times 5 = 30 \text{ cm}^2$.

Suggested marking: 1 mark for the correct option.

Question 4 [1 mark]

Option 4. Volume = $4 \times 4 \times 4 = 64 \text{ cm}^3$.

Suggested marking: 1 mark for the correct option.

Question 5 [1 mark]

Option 3. 1 litre = 1000 cm^3 , so 2.4 litres = 2400 cm^3 .

Suggested marking: 1 mark for the correct option.

Question 6 [1 mark]

Option 2. A triangle has half the area: $48 \div 2 = 24 \text{ cm}^2$.

Suggested marking: 1 mark for the correct option.

Question 7 [2 marks]

$$2 \frac{1}{4} = \frac{9}{4}.$$

$$\frac{9}{4} \times \frac{2}{3} = \frac{18}{12} = 1 \frac{1}{2}.$$

Suggested marking: 1 mark for valid working; 1 mark for the correct complete answer.

Question 8 [2 marks]

$$24 \div 8 = 3.$$

$$3 \times 7 = 21.$$

Suggested marking: 1 mark for valid working; 1 mark for the correct complete answer.

Question 9 [2 marks]

$$\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}.$$

$$\text{Area} = \frac{1}{2} \times 16 \times 9 = 72 \text{ cm}^2.$$

Suggested marking: 1 mark for valid working; 1 mark for the correct complete answer.

Question 10 [2 marks]

$$\text{Base area} = 12 \times 5 = 60 \text{ cm}^2.$$

$$\text{Height} = 360 \div 60 = 6 \text{ cm}.$$

Suggested marking: 1 mark for valid working; 1 mark for the correct complete answer.

Question 11 [2 marks]

$$\text{Volume} = 25 \times 16 \times 6 = 2400 \text{ cm}^3.$$

$$2400 \text{ cm}^3 = 2.4 \text{ litres}.$$

Suggested marking: 1 mark for valid working; 1 mark for the correct complete answer.

Question 12 [2 marks]

$$\text{Base} \times \text{height} = 54 \times 2 = 108.$$

$$\text{Height} = 108 \div 12 = 9 \text{ cm}.$$

Suggested marking: 1 mark for valid working; 1 mark for the correct complete answer.

Question 13 [4 marks]

(a) $\text{Volume} = 30 \times 20 \times 9 = 5400 \text{ cm}^3 = 5.4 \text{ litres}.$

(b) $\text{Remaining depth} = 15 - 9 = 6 \text{ cm}.$

$$\text{Extra volume} = 30 \times 20 \times 6 = 3600 \text{ cm}^3 = 3.6 \text{ litres}.$$

Suggested marking: Parts (a) and (b): 1 method mark and 1 answer mark each.

Question 14 [4 marks]

(a) Fraction remaining after bag = $\frac{2}{3}$.

Lunch = $\frac{1}{4} \times \frac{2}{3} = \frac{1}{6}$ of the original money.

(b) Fraction left = $\frac{2}{3} - \frac{1}{6} = \frac{1}{2}$.

Half is \$36, so original amount = \$72.

Suggested marking: Parts (a) and (b): 1 method mark and 1 answer mark each.

Question 15 [4 marks]

(a) Perpendicular height = 10 cm.

Triangle area = $\frac{1}{2} \times 18 \times 10 = 90 \text{ cm}^2$.

(b) Rectangle area = $18 \times 10 = 180 \text{ cm}^2$.

Remaining total area = $180 - 90 = 90 \text{ cm}^2$.

Suggested marking: Parts (a) and (b): 1 method mark and 1 answer mark each.