

Converting Units of Area and Volume - Worksheet

Skill

Group A - Metric units of area

Convert the metric units of area below:

- | | | |
|---|---------------------------------------|--------------------------------------|
| 1) 3cm^2 to mm^2 | 2) 9cm^2 to mm^2 | 3) 700mm^2 to cm^2 |
| 4) 8000mm^2 to cm^2 | 5) 9m^2 to cm^2 | 6) 0.9m^2 to cm^2 |
| 7) $80\,000\text{cm}^2$ to m^2 | 8) 700cm^2 to m^2 | 9) 17mm^2 to cm^2 |
| 10) 0.03cm^2 to mm^2 | 11) 2.34km^2 to m^2 | 12) 8m^2 to mm^2 |
-

Group B - Metric units of volume

Convert the metric units of volume below:

- | | | |
|---|--|--|
| 1) 5cm^3 to mm^3 | 2) 85000mm^3 to cm^3 | 3) 80m^3 to cm^3 |
| 4) $7\,000\,000\text{cm}^3$ to m^3 | 5) 0.5m^3 to cm^3 | 6) 200mm^3 to cm^3 |
| 7) 0.073cm^3 to mm^3 | 8) 102.5mm^3 to cm^3 | 9) 0.08m^3 to cm^3 |
| 10) 930cm^3 to m^3 | 11) 0.9km^3 to m^3 | 12) $6\,000\,000\text{mm}^3$ to m^3 |
-

Group C - Metric units of area and volume

Convert the metric units of area and volume below:

- | | | |
|--------------------------------------|--|--|
| 1) 9m^2 to cm^2 | 2) 7cm^3 to mm^3 | 3) 100mm^3 to cm^3 |
| 4) 180mm^2 to cm^2 | 5) 17m^2 to cm^2 | 6) 1200cm^3 to mm^3 |
| 7) 900cm^2 to m^2 | 8) 1100mm^3 to cm^3 | 9) 3321cm^2 to m^2 |
| 10) 8km^2 to m^2 | 11) $4\,200\,000\text{m}^3$ to km^3 | 12) 0.000009km^2 to cm^2 |

Converting Units of Area and Volume - Worksheet

Applied

- 1) (a) Samantha has been asked to change $500m^2$ into km^2 .
She says, "Since there are 1000m in 1km, I will divide $500m^2$ by 1000 and get $0.5km^2$ as my answer."

Explain why Samantha is incorrect.

- (b) What is the correct answer? Show your working.
- 2) (a) Lily is tiling her bathroom floor. Each square tile is 10cm by 10cm and the floor is 4m by 6m. How many tiles will Lily need to cover her entire bathroom floor?
- (b) If each tile costs 70p, how much will it cost to tile the entire bathroom floor?
- 3) (a) A cube has a volume of $0.027m^3$. What is the volume of the cube in cubic centimetres?
- (b) What is the side length of the cube in centimetres?
- 4) (a) Given that $1l = 1000cm^3$, calculate how many litres of water fit in this tank.



- (b) Water is poured into the tank at a rate of $500ml/sec$. How long will it take to fill the tank? Give your answer in hours.

Converting Units of Area and Volume - Exam Questions

- 1) (a) Write $24m^2$ in cm^2 .

.....
(2)

- (b) Write $440mm^2$ in m^2 .

.....
(2)
(4 marks)

-
- 2) (a) Write $7m^3$ in cm^3 .

.....
(2)

- (b) Write $90000mm^3$ in m^3 .

.....
(2)
(4 marks)

-
- 3) (a) A fence with an area of $60m^2$ needs to be painted. Each tin of paint covers an area of $50000cm^2$. How many tins of paint will be needed to cover the entire fence?

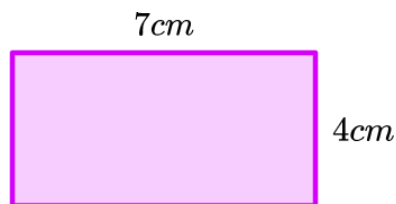
.....
(2)

Converting Units of Area and Volume - Exam Questions

- (b) If each tin costs £6.50, how much will it cost to cover the entire fence?

.....
(2)
(4 marks)

-
- 4) (a) Find the area of the rectangle. Give your answer in cm^2



.....
(2)

- (b) Convert your answer in (a) to m^2

.....
(2)
(4 marks)

Converting Units of Area and Volume - Exam Questions

| | Question | Answer |
|---------|---|---|
| | Skill Questions | |
| Group A | Work out: 1) 3cm^2 to mm^2 2) 9cm^2 to mm^2 3) 700mm^2 to cm^2 4) 8000mm^2 to cm^2 5) 9m^2 to cm^2 6) 0.9m^2 to cm^2 7) $80\,000\text{cm}^2$ to m^2 8) 700cm^2 to m^2 9) 17mm^2 to cm^2 10) 0.03cm^2 to mm^2 11) 2.34km^2 to m^2 12) 8m^2 to mm^2 | 1) 300mm^2 2) 900mm^2 3) 7cm^2 4) 80cm^2 5) $90\,000\text{cm}^2$ 6) 9000cm^2 7) 8m^2 8) 0.07m^2 9) 0.17cm^2 10) 3mm^2 11) $2\,340\,000\text{m}^2$ 12) $8\,000\,000\text{mm}^2$ |
| Group B | Convert the metric units of volume below: 1) 5cm^3 to mm^3 2) 85000mm^3 to cm^3 3) 80m^3 to cm^3 4) $7\,000\,000\text{cm}^3$ to m^3 5) 0.5m^3 to cm^3 6) 200mm^3 to cm^3 7) 0.073cm^3 to mm^3 8) 102.5mm^3 to cm^3 9) 0.08m^3 to cm^3 10) 930cm^3 to m^3 11) 0.9km^3 to m^3 12) $6\,000\,000\text{mm}^3$ to m^3 | 1) 5000mm^3 2) 85cm^3 3) $80\,000\,000\text{cm}^3$ 4) 7m^3 5) $500\,000\text{cm}^3$ 6) 0.2cm^3 7) 73mm^3 8) 0.1025cm^3 9) $80\,000\text{cm}^3$ 10) 0.00093m^3 11) $900\,000\,000\text{m}^3$ 12) 0.006m^3 |

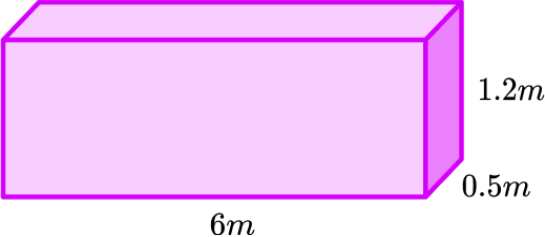
Converting Units of Area and Volume - Answers

| | | |
|---------|---|---|
| Group C | <p>Convert the metric units of area and volume below:</p> <p>1) $9m^2$ to cm^2</p> <p>2) $7cm^3$ to mm^3</p> <p>3) $100mm^3$ to cm^3</p> <p>4) $180mm^2$ to cm^2</p> <p>5) $17m^2$ to cm^2</p> <p>6) $1200cm^3$ to mm^3</p> <p>7) $900cm^2$ to m^2</p> <p>8) $1100mm^3$ to cm^3</p> <p>9) $3321cm^2$ to m^2</p> <p>10) $8km^2$ to m^2</p> <p>11) $4\,200\,000m^3$ to km^3</p> <p>12) $0.000009km^2$ to cm^2</p> | <p>1) $90000cm^2$</p> <p>2) $7000mm^3$</p> <p>3) $0.1cm^3$</p> <p>4) $1.8cm^2$</p> <p>5) $170\,000cm^2$</p> <p>6) $1\,200\,000mm^3$</p> <p>7) $0.09m^2$</p> <p>8) $1.1cm^3$</p> <p>9) $0.3321m^2$</p> <p>10) $8\,000\,000m^2$</p> <p>11) $0.0042m^3$</p> <p>12) $90\,000cm^2$</p> |
|---------|---|---|


Converting Units of Area and Volume - Answers

| | Question | Answer |
|----|---|---|
| | Applied Questions | |
| 1) | <p>a) Samantha has been asked to change $500m^2$ into km^2. She says, "Since there are 1000m in 1km, I will divide $500m^2$ by 1000 and get $0.5km^2$ as my answer."</p> <p>Explain why Samantha is incorrect.</p> | <p>a) She did not square the scale factor which we need to do when we are dealing with area.</p> |
| | <p>b) What is the correct answer? Show your working.</p> | <p>b) $500 \div 1000^2$ $0.0005km^2$</p> |
| 2) | <p>a) Lily is tiling her bathroom floor. Each square tile is 10cm by 10cm and the floor is 4m by 6m. How many tiles will Lily need to cover her entire bathroom floor?</p> | <p>a) $240000 \div 100$ 2400 tiles will be needed</p> |
| | <p>b) If each tile costs 70p, how much will it cost to tile the entire bathroom floor?</p> | <p>b) 2400×0.7 £1680</p> |
| 3) | <p>a) A cube has a volume of $0.027m^3$. What is the volume of the cube in cubic centimetres?</p> | <p>a) $0.027 \times 1000\ 000 = 27000cm^3$</p> |
| | <p>b) What is the side length of the cube in centimetres?</p> | <p>b) $\sqrt[3]{27000} = 30cm$</p> |

Converting Units of Area and Volume - Answers

| | | |
|----|--|---|
| 4) | <p>a) Given that $1l = 1000cm^3$, calculate how many litres of water fit in this tank.</p>  | <p>a) $6 \times 0.5 \times 1.2 = 3.6m^3$ $3.6m^3 = 3600000cm^3 = 3600l$</p> |
| | <p>b) Water is poured into the tank at a rate of $500ml/sec$. How long will it take to fill the tank? Give your answer in hours.</p> | <p>b) $3600 \div 0.5 = 7200 \text{ seconds}$ $7200 \text{ secs} = 120 \text{ mins} = 2 \text{ hrs}$</p> |

Converting Units of Area and Volume - Mark Scheme

| | Question | Answer | |
|--------|--|--|------------|
| | Exam Questions | | |
| 1) (a) | Write $24m^2$ in cm^2 . | (a) 24×100^2 $240000cm^2$ | (1) (1) |
| (b) | Write $440mm^2$ in m^2 . | (b) $440 \div 1000^2$ $0.00044m^2$ | (1) (1) |
| 2) (a) | Write $7m^3$ in cm^3 . | (a) 7×100^3 $7\,000\,000cm^3$ | (1) (1) |
| (b) | Write $90000mm^3$ in m^3 . | (b) $90\,000 \div 1\,000^3$ $0.00009m^3$ | (1) (1) |
| 3) (a) | A fence with an area of $60m^2$ needs to be painted. Each tin of paint covers an area of $50000cm^2$. How many tins of paint will be needed to cover the entire fence? | (a) $60 \times 100^2 = 600000$ $600000 \div 50000$ 12 tins | (1) (1) |
| (b) | If each tin costs £6.50, how much will it cost to cover the entire fence? | (b) 12×6.50 £78 | (1) (1) |
| 4) (a) | Find the area of the rectangle. Give your answer in cm^2 <div style="text-align: center; margin: 10px 0;"> $7cm$  $4cm$ </div> | (a) 7×4 $28cm^2$ | (1) (1) |
| (b) | Convert your answer in (a) to m^2 | (b) $28cm^2 \div 10000$ $0.0028m^2$ | (1) (1) |

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