Year 7 Semester 2 2021 Answers

SECTION 1
MULTIPLE CHOICE (10 marks) Choose the correct answer.

1. Consider $\frac{5}{8}$, $\frac{3}{4}$, $\frac{5}{6}$ and $\frac{7}{10}$.
The largest fraction is:

(A) $\frac{5}{6}$ B $\frac{7}{10}$ C $\frac{3}{4}$ D $\frac{5}{8}$

2. $\frac{1}{2} + \frac{1}{3} =$

A $\frac{1}{5}$ B $\frac{2}{5}$ C $\frac{1}{6}$ (D) $\frac{5}{6}$

3. $\frac{4}{5}$ as a decimal is:

A 4.5 (B) 0.8 C 1.25 D 5.4

4. 3.487 rounded to 2 decimal places is:

(A) 3.49 B 3.50 C 3.48 D 3.5

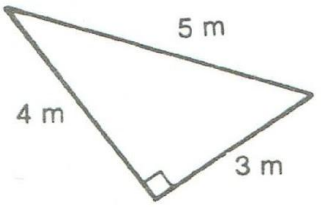
5. If the length of a rectangle is 'a' and the width is 'b' the perimeter is:

A a+b B ab (C) 2a+2b D $a^2 + b^2$

6. If a = 6, b = 14 and c = -2 then a + b - c =

A -10 **B** 18 **C** -168 **D** 22

7. The area of this triangle is:



A $60m^2$ **B** $6m^2$ **C** $12m^2$ **D** $10m^2$

8. The length of a rectangle is 5cm more than its width. If the width of the rectangle is y cm, an expression for the area, in square centimetres, is:

A $y^2 + 5$ **B** $y^2 + 5y$ **C** $4y + 10$ **D** $5y^2$

9. A fish tank is a rectangular prism with a height of 40cm, a width of 50cm and a length of 80cm. The volume of the tank, in cubic centimetres, would be:

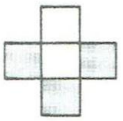
A 160 000 **B** 16 000 **C** 1600 **D** 160

10. Which of the following is NOT equivalent to 4500L?

A 4.5kL **B** 4 500 000cm^3 **C** 4.5m^3 **D** 0.00045ML

SECTION 2 - FREE RESPONSE
FRACTIONS (10 marks) START A NEW PAGE

1. What fraction is shaded?



$\frac{3}{5}$

2. Convert $5\frac{1}{2}$ to an improper fraction

$\frac{11}{2}$

3. Convert $\frac{17}{3}$ to a mixed numeral

$5\frac{2}{3}$

4. Simplify $\frac{25}{30}$

$\frac{5}{6}$

5. $\frac{2}{5} + \frac{1}{5} =$

$\frac{3}{5}$

6. **Show** how $\frac{2}{3} - \frac{1}{5} = \frac{7}{15}$

$\frac{10}{15} - \frac{3}{15} = \frac{7}{15}$

7. $5\frac{1}{2} \times 3\frac{1}{4} =$

$17\frac{7}{8}$

8. **Show** how $\frac{5}{6} \div \frac{1}{3} = 2\frac{1}{2}$

$\frac{5}{\cancel{6}_{2}} \times \frac{\cancel{3}^{1}}{1} = \frac{5}{2} = 2\frac{1}{2}$

9. How many minutes are there in three quarters of an hour?

45

10. Jack finds $\frac{1}{2}$ of his birthday cake in the fridge. He eats $\frac{1}{3}$ of it. What fraction of the cake is left?

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

DECIMALS (10marks) START A NEW PAGE

1. Convert $\frac{3}{4}$ to a decimal

1. 0·75

2. Convert $\frac{7}{11}$ to a recurring decimal

2. $0.\dot{6}\dot{3}$

3. Write 0.15, 0.105 and 0.1055 in order from smallest to largest. 0·105, 0·1055, 0·15

4. 14.2 – _____ = 8.6

4. 5.6

5. When we multiply 6.32 by 1000 we move the decimal point in 6.32 ___3___ places to the ___right___ to get the answer ___6320___

6. Find 15.6 x 2.4 showing all necessary working.

6. 156 x
24
624
3120
3744
37·44

7. _____ ÷ 0.8 = 1.42

7. 1·136

8. 0.8 ÷ _____ = 3.2

8. 0·25

9. Josi earns $18.75 per hour when working at a cafe. How much does she earn the week she works 37.5 hours? (Write your answer correct to the nearest cent)

9. 18·75 x 37·5
≑$703·13 (n.cent)

10. How many books priced at $7.60 can be purchased for $1162?

10. $1162 ÷ $7·60
≑ 152·8947368
Answer 152 books

ALGEBRA (10 marks) START A NEW PAGE

1. Simplify. $5m + 6m =$ 11m

2. Simplify $8y - y =$ 7y

3. Simplify $6 \times 2d \times 5 =$ 60d

4. Simplify fully $8g \div 10 =$ $\frac{4g}{5}$

5. Write an algebraic expression for the sum of a, b and c divided by 3. $\frac{a+b+c}{3}$

6. Write an algebraic expression for the next consecutive number after P. P+1

7. If m = 4, n = 5 and q = 6 evaluate 2m + n - q $2\times4+5-6=7$

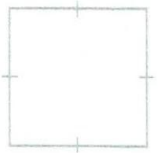
8. If H= 4g - 1 find H when g= -2 $H = 4\times-2-1 = -9$

9. Expand 3(2t + 1) = $6t+3$

10. Expand and simplify your answer 15b - 5(2b + 1) $15b-10b-5$
$= 5b-5$

MEASUREMENT (10 marks) START A NEW PAGE

1. Find the perimeter of this square, in centimetres.



1. $P = 3.6 \times 4$
$= 14.4\text{cm}$

2. Convert 5m to cm

2. 500cm

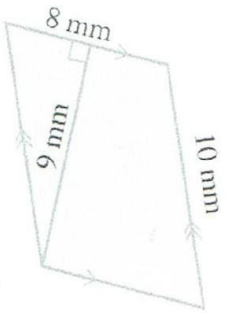
3. Find the area of this rectangle, in square metres.

3. $A = LW$
$= 10.8 \times 16.4$
$= 177.12\text{m}^2$

4. Convert 6.2 cm^2 to mm^2

4 620 mm^2

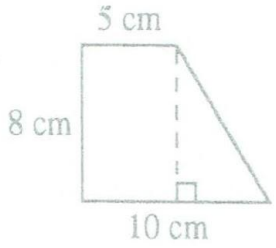
5. Find the area of the parallelogram in square millimetres.



5. $A = bh$
$= 9 \times 8$
$= 72\text{mm}^2$

MEASUREMENT cont

6.



(a) Find the area of the rectangular part of this shape.

$A_1 = 5 \times 8$
$= 40 cm^2$

(b) Find the area of this composite shape, in square centimetres.

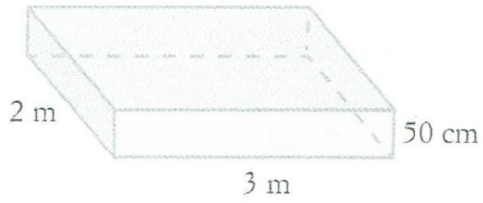
$A_2 = \frac{1}{2} \times 5 \times 8$
$= 20 cm^2$

$A_1 + A_2 = 60 cm^2$

7. A water tank in the shape of a cube, has a volume of 512 cubic metres. What is its capacity in litres?

7. 512 000L

8. Find the volume of this prism, in cubic metres.



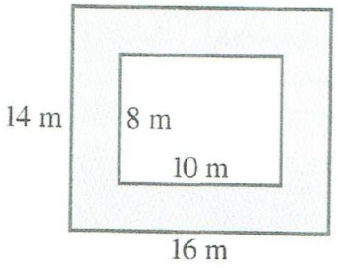
8. $V = LWH$
$= 2 \times 3 \times 0.5$
$= 3m^3$

9. A rectangular prism has a volume of 64 m^3 . If it is 8 m long and 2 m high, how wide is it?

$V = LWH$
$64 = 8 \times W \times 2$
$W = 4m$

PROBLEM SOLVING (10 marks) START A NEW PAGE

1. This diagram represents a backyard with a garden 8m by 10m.



(a) Find the area of the garden, in square metres.

$A_1 = 8 \times 10$
$= 80 m^2$

(b) Find the shaded area around the garden, in square metres.

$A = A_2 - A_1$
$= 14 \times 16 - 80$
$= 144 m^2$

(c) If the shaded area is laid with grass, find the total cost of the grass, if it is priced at $14.10 per square metre.

$C = 144 \times \$14.10$
$= \$2030.40$

2. One Australian dollar buys 73.2 American cents.

(a) How many American dollars can you buy for $100 Australian dollars?

0.732×100
$= \$73.20$ US

(b) How many Australian dollars can be bought for $100 American dollars?

$100 \div 0.732$
$= \$136.6120219$
$\doteq \$136.61$ AUD

3. What fraction lies halfway between one third and one fifth?

$\frac{4}{15}$

4. A section of highway is rectangular in shape, 12.2m wide and 1km long.
Calculate this area in square metres

$A = 12.2 \times 1000$
$= 12\,200 m^2$

5. What is the missing number?

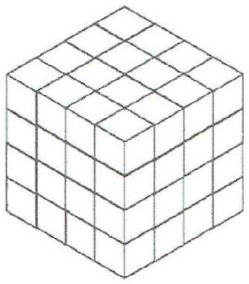
$\frac{2}{5} + 17 = \frac{\quad}{15} + 16$

$\frac{6}{15} + 1 + 16$

$= \frac{21}{15} + 16$

Missing number is 21.

6. Here is a 4x4x4 cubic block of wood.



All six faces of the cube are painted red. The cube is then cut into 64 cubes of equal size.

(a) How many cubes will have red paint on only two sides?

24

(b) How many cubes will be unpainted?

8

-END OF TEST-