Year 5 Term 2 Test Solutions

Student Name: _____	**Grade**: _____
Date: _____	**Score**: _____

- Answer the questions in the spaces provided on the question sheets.
- If you run out of room for an answer, continue on the back of the page.
- This test has 38 questions, for a total of 100 marks.
- Do not use a calculator.
- Attempt all 38 questions.
- Time allowed: 60 minutes.

Page:	1	2	3	4	5	6	7	8	Total
Marks:	10	10	10	12	9	9	20	20	100
Score:									

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Questions 1 through 10 are multiple choice questions (1 marks each).

Question 1 ..... (1 mark)

The value of 5 in the hundred thousands place is _____ times the value of 5 in the tens place.

A. 10 B. 100 C. 1000 **D. 10000**

Question 2 ..... (1 mark)

500 less than half a million is _____ .

A. 499500 B. 500500 C. 999500 D. 490500

Question 3 ..... (1 mark)

Find the product of 1234×15.

A. 18510 B. 16510 C. 18420 D. 18500

Question 4 ..... (1 mark)

How many $\frac{1}{3}$ are in $5\frac{2}{6}$?

A. 6 B. 12 C. 8 **D. 16**

Question 5 ..... (1 mark)

David had \$160. He bought a watch for \$70 and two pair of socks at \$10 each pair. What fraction of the money did he have left?

A. $\frac{9}{19}$ B. $\frac{9}{16}$ **C.** $\frac{7}{16}$ D. $\frac{8}{21}$

Question 6 ..... (1 mark)

William and Jane shared \$172. Jane received \$28 more than William. Find the ratio of William's share to Jane's share.

A. 25:18 **B. 18:25** C. 9:11 D. 13:8

Question 7 ..... (1 mark)

Express 82 ml as a decimal of 4 litres.

A. 0.041 **B. 0.0205** C. 0.082 D. 4.82

Question 8 ..... (1 mark)

Express 1.28 as an improper fraction and reduce the answer to its simplest form.

A. $1\frac{28}{100}$ B. $\frac{25}{32}$ C. $\frac{100}{28}$ **D.** $\frac{32}{25}$

Question 9 ..... (1 mark)

Express $\frac{8}{12}$ as a percentage.

A. $66\frac{2}{3}$**%** B. $\frac{72}{100}\%$ C. $6\frac{2}{3}\%$ D. $\frac{8}{12}\%$

Question 10 ..... (1 mark)

The perimeter of a square tile is 164 cm. Find its area.

A. 1681 cm^2 B. 196 cm^2 C. 368 cm^2 D. 961 cm^2

Questions 11 through 20 are Average Questions (2 marks each).

Question 11 . . . . . (2 marks)

The sum of two numbers is 15. The larger number is four times the smaller number. What are the numbers?

Solution: $\begin{cases} A+B=15 \\ A=4B \end{cases} \Rightarrow 4B+B=15 \Rightarrow B=3 \begin{cases} A=12 \\ B=3 \end{cases}$

Question 12 . . . . . (2 marks)

Express $3\frac{2}{3}$ years in months.

Solution: $3\frac{2}{3} \times 12 = \frac{11}{3} \times 12 = 44$ months

Question 13 . . . . . (2 marks)

Jessica bought 25.6 m of cloth. She used $\frac{1}{4}$ of it to make a dress and another 3.2 m to make a blouse. How much cloth did she have left?

Solution:

The cloth used $25.6 \times \frac{1}{4} + 3.2 = 9.6\,m$

Cloth have left $25.6 - 9.6 = 16\,m$

Question 14 . . . . . (2 marks)

How many 3 cm cubes can be put in a rectangular box that measures 24 cm by 18 cm by 12 cm?

Solution:

Number of rows $24 \div 3 = 8$ rows

Number of columne $18 \div 3 = 6$ columns

Number of layers $12 \div 3 = 4$ layers

Number of small cubes $8 \times 6 \times 4 = 192$ cubes

Question 15 . . . . . (2 marks)

9 boys spent \$819. If each of them spent the same amount of money, how much did 5 of them spend?

Solution:

Each boy spent $819 \div 9 = \$91$

Five boys spent $5 \times 91 = \$455.00$

Question 16 . . . . . (2 marks)

Find the remainder when 4567 is divided by 24.

Solution: $4567 \div 24 = 190\,R\,7$

Question 17 . . . . . (2 marks)

How many fifths are there in $19\frac{8}{10}$?

Solution: $19\frac{8}{10} \div \frac{1}{5} = \frac{198}{10} \times \frac{5}{1} = 99$

Question 18 . . . . . (2 marks)

The height of a triangle is 12 cm. Its base is $6\frac{1}{2}$ cm. What is its area?

Solution:

$$A = \frac{1}{2} \times b \times h = \frac{1}{2} \times 6\frac{1}{2} \times 12$$
$$= \frac{1}{2} \times \frac{13}{2} \times 12$$
$$= 39\,cm^2.$$

Question 19 . . . . . (2 marks)

$\frac{7}{12}$ of a revolution is equal to _____ **210** _____ degrees.

Solution: $\frac{7}{12} \times 360^\circ = 210^\circ$

Question 20 . . . . . (2 marks)

2.8 kg of chocolate cookies cost \$10.78. If Linda bought 7 kg of the cookies, how much must she pay?

Solution:

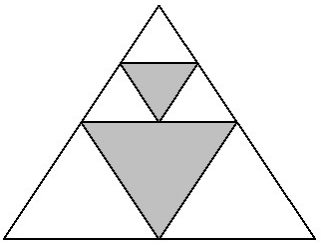
Each kg costs $10.78 \div 2.8 = \$3.85$

7 kg will cost $7 \times 3.85 = \$26.95$

Questions 21 through 30 are Extension Questions (3 marks each).

Question 21 . . . . . (3 marks)

What fraction of the whole figure is unshaded?



Solution: $\frac{11}{16}$

Question 22 . . . . . (3 marks)

Ben earns \$1350 each week. He spent 18% of it on transport and 30% of it on food. How much did he have left if he also gave \$400 to his wife?

Solution:

He spent $\$1350 \times (18\% + 30\%) = \$1350 \times 48\% = \$648$

He has left $\$1350 - (648 + 400) = \$302$.

Question 23 . . . . . (3 marks)

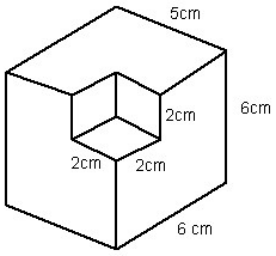
Find the value of $12\frac{1}{2} - 3\frac{2}{3} + 1\frac{3}{8}$. (Give your answer in its simplest form)

Solution:

$$12\frac{1}{2} - 3\frac{2}{3} + 1\frac{3}{8} = 12\frac{12}{24} - 3\frac{16}{24} + 1\frac{9}{24}$$
$$= 13\frac{21}{24} - 3\frac{16}{24}$$
$$= 10\frac{5}{24}.$$

Question 24 . . . . . (3 marks)

Find the surface area of the figure shown:

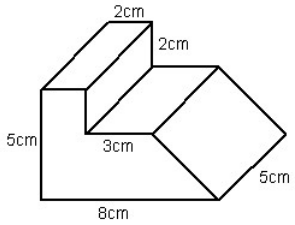


Solution:

$A = 5 \times 6 \times 2 + 6 \times 6 \times 2 + 5 \times 6 \times 2 = 192\,cm^2$

Question 25 . . . . . (3 marks)

Find the volume of the figure shown:



Solution:

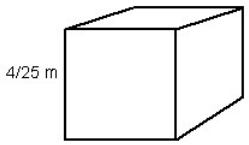
$V = A \times L$

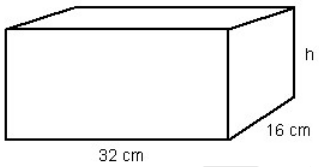
$A = 2 \times 2 + \frac{1}{2}(5+8) \times 3 = 23.5\,cm^2$

$V = 23.5 \times 5 = 117.5\,cm^3$

Question 26 . . . . . (3 marks)

A cube of side $\frac{4}{25}$ m was constructed out of clay and then moulded into a rectangle prism with length 32 cm and breadth 16 cm. What is the height of the rectangular prism?





Solution:

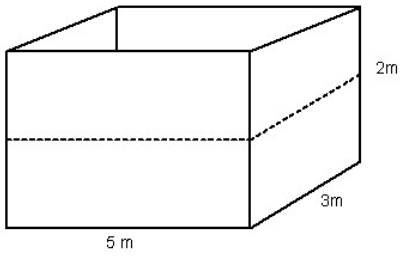
$\frac{4}{25}m = 0.16m = 16\,cm$

The volume of the cube $V = 16^3 = 4096\,cm^3$

$V = A \times h = 32 \times 16 \times h \Rightarrow h = 4096 \div (32 \times 16) = 8\,cm$

Question 27 . . . . . (3 marks)

The dimension of a water tank is 5m by 3m by 2m. The tank is half full and 1.8 kL of water is added. What is the depth of the water in the tank?



Solution:

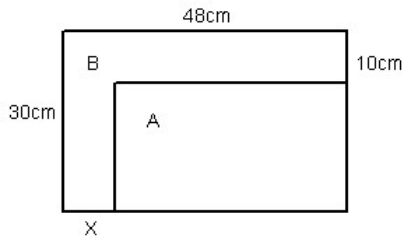
$1.8\,kL = 1800\,L = 1.8\,m^3$

$V = A \times h = 5 \times 3 \times h \Rightarrow h = 1.8 \div (5 \times 3) = 0.12\,m = 12\,cm$

The water level $H = 100 + 12 = 112\,cm = 1.12\,m$

Question 28 . . . . . (3 marks)

A rectangle is divided into two parts, A and B. For A and B to have equal areas, what is the length of X?



Solution:

$A = 30 \times 48 = 1440\,cm^2$. $A_2 = \frac{1}{2} \times 1440 = 720\,cm^2$

$A_1 = A_2 = (48 - x) \times (30 - 10) = (48 - x) \times 20$

$960 - 20x = 720 \Rightarrow 20x = 960 - 720 \Rightarrow x = 12\,cm$

Question 29 . . . . . (3 marks)

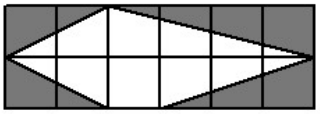
A rectangular prism is made up of 90 cubes of side 2 cm. What is the height of the prism if the sum of the length and breadth is 18 cm?

Solution:

$$\begin{cases} \text{1 layer } 9 \times 10 \times 1 \Rightarrow 18\,cm \times 20\,cm \times 2\,cm \\ \text{2 layers } 5 \times 9 \times 2 \Rightarrow 10\,cm \times 18\,cm \times 4\,cm \\ \text{3 layers } 3 \times 10 \times 3 \Rightarrow 6\,cm \times 20\,cm \times 6\,cm \\ \text{5 layers } 2 \times 9 \times 5 \Rightarrow 4\,cm \times 18\,cm \times 10\,cm \\ \text{5 layers } 3 \times 6 \times 5 \Rightarrow 6\,cm \times 12\,cm \times 10\,cm \end{cases} \Rightarrow h = 10\,cm$$

Question 30 . . . . . (3 marks)

What fraction of the whole figure is shaded?



Solution:

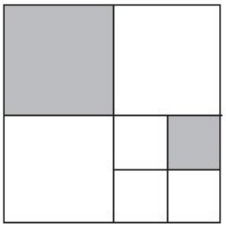
Shaded part $= \frac{1}{2} \times 1 \times 2 + \frac{1}{2} \times 1 \times 4 + \frac{1}{2} \times 1 \times 2 + \frac{1}{2} \times 1 \times 3 = 5\frac{1}{2}$ units^2

The ratio is $= \frac{5.5}{12} = \frac{11}{24}$

Questions 31 through 38 are Challenging Questions (4 marks each).

Question 31 . . . . . (5 marks)

For the given diagram shown:



(a) What part of the square is shaded? [1]

Solution: $\frac{5}{16}$

(b) What part is not shaded? [1]

Solution: $\frac{11}{16}$

(c) What area is shaded if the area of the square is 64 cm^2? [3]

Solution:
The area of the shaded part$A = \frac{5}{16} \times 64 = 20\,cm^2$.

Question 32 . . . . . (5 marks)

Steven wants to fence his pool with dimensions of 8 m by 12 m. He wants the fence to be 2.5 m from the edge of the pool on all sides. How many metres of fencing will he need?

Solution:
The fencing dimensions are 13 m by 17m
The perimeter of the fance $P = (13 + 17) \times 2 = 60\,m$

Question 33 . . . . . (5 marks)

Find the sum of: 3 + 6 + 9 + ... + 54 + 57 + 60.

Solution: There is 20 numbers The sum is $\Sigma = (3 + 60) \times \frac{20}{2} = 630.$

Question 34 . . . . . (5 marks)

Ray is 0.6 as old as Kevin. Kevin is 0.4 as old as Michael. If Ray is 12 years old, find the combined age of the three.

Solution:
$\begin{cases} R = 0.6K \\ K = 0.4M \end{cases} \Rightarrow$ If $R = 12 \Rightarrow K = R \div 0.6 = 12 \div 0.6 = 20$ years old

$M = K \div 04$. $M = 20 \div 0.4 = 50$ years old

Their combined age is $= 12 + 20 + 50 = 82$ years

Question 35 ..... (5 marks)

In the figure shown below, ABC is an equilateral triangle. The perimeter of triangle BCD is 20 cm. Express the perimeter of triangle ABC as a fraction of the perimeter of triangle ABD in its lowest terms.

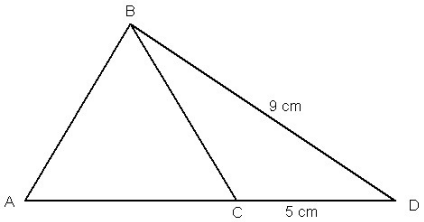
Solution:

$BC = 20 - (9 + 5) = 6\,cm$ $AB = BC = AC = 6\,cm$

The perimeter of triangle ABC is $P_1 = 6 \times 3 = 18\,cm$

The perimeter of triangle ABD is $P_2 = 6 + 6 + 5 + 9 = 26\,cm$

$\frac{P_1}{P_2} = \frac{18}{26} = \frac{9}{13}$.



Question 36 ..... (5 marks)

140 sweets are shared among 4 children in the ratio 2:3:4:5. Find the difference of the number of sweets between the greatest and the smallest shares.

Solution:

The sum of the ratio $= 2 + 3 + 4 + 5 = 14$

$140 \div 14 = 10$/each share

The difference between the greatest and the smallest is $(5 - 2) \times 10 = 30$ sweets

Question 37 ..... (5 marks)

Tony had a 12 noon appointment that was 60 km from his home. He drove from his place at an average rate of 50 km/h and arrived 12 minutes late. At what time did Tony leave home for the appointment?

Solution:

The times taken $T = D \div S = 60 \div 50 = 1.2$ hours $= 72$ minutes

The time he leave home $= 12 : 12 - 1 : 12 = 11 : 00\,a.m.$

Question 38 ..... (5 marks)

Adam wants to purchase a computer game but is \$32 short. Bob wants to purchase the same game but is \$23 short. If they combine their money, they have just enough to buy the game. What is the cost of the game?

Solution:

The games costs $= A + 32 = B + 23 = A + B$ $\begin{cases} A = \$23 \\ B = \$32 \end{cases}$

$\therefore$ The games costs $= A + B = \$23 + \$32 = \$55$.