

Sample Exam 9 - Solutions

Session 9

Total: 75 marks

SECTION I

1. Write in words: [1]

Hundreds of Thousands	Tens of Thousands	Thousand	Hundred	Tens	Ones
3	6	0	3	0	0

Answer _____ **Three hundred and sixty thousand, three hundred** _____

2. Use the digits below to make the smallest number that is a multiple of 7. [1]

8

7

4

Smallest - $478 \div 7 = 68 \text{ r } 2$

$487 \div 7 = 69 \text{ r } 4$

$748 \div 7 = 106 \text{ r } 6$

$784 \div 7 = 112$

Answer _____ **784** _____

3. A batch of 168 cookies were equally divided into 8 groups. How many cookies were in each group? [1]

$$8 \text{ groups} = 168 \text{ cookies}$$

$$1 \text{ group} = 168 \div 8$$

$$= 21 \text{ cookies}$$

Answer _____ **21** _____ cookies

4. If $\frac{4}{7}$ of a number is 72, what is the number? [1]

$$\frac{4}{7} \text{ of a number} = 72$$

$$\text{The number is} = 72 \div \frac{4}{7}$$

$$= 72 \times \frac{7}{4}$$

$$= 126$$

Answer _____ **126** _____

5. Express 0.36 as a common fraction.

[1]

$$0.36 = \frac{36}{100}$$

$$= \frac{9}{25}$$

Answer _____ $\frac{9}{25}$ _____

6. $8^2 \div 4 = 4 \times \square$

[1]

$$8^2 \div 4 = (8 \times 8) \div 4$$

$$= 64 \div 4$$

$$= 16$$

Now,

$$16 \div 4 = 4$$

Answer _____ 4 _____

7. Fill in $>$, $<$ or $=$ into the box to make the statement correct.

[1]

$$(12 + 8) - 10 \quad \square \quad (10 + 8) - 12$$

$$(12 + 8) - 10 = 20 - 10$$

$$= 10$$

$$(10 + 8) - 12 = 18 - 12$$

$$= 6$$

Now, $10 > 6$

Answer _____ $>$ _____

8. Write the next term in the sequence.

[1]

2, 8, 14, 20, _____

$$\begin{array}{ccccccc}
 2 & \longrightarrow & 8 & \longrightarrow & 14 & \longrightarrow & 20 & \longrightarrow & 26 \\
 & & +6 & & +6 & & +6 & & +6
 \end{array}$$

Answer _____ 26 _____

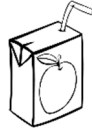
9. Olivia bought these three items.



\$18.45



\$4.10



\$3.50

What was the total cost of these three items?

[1]

$$\begin{array}{r}
 \$ 18.45 \\
 \$ 4.10 \\
 + \$ 3.50 \\
 \hline
 \$ 26.05 \\
 \hline
 \end{array}$$

Answer \$ 26.05

Kerwin Springer

10. On Friday, 100 people visited the museum. Four times as many people visited on Saturday than on Friday. How many more people visited the museum on Saturday than on Friday? [1]

$$\text{Friday} = 100$$

$$\text{Saturday} = 100 \times 4$$

$$= 400$$

$$\text{Difference} = 400 - 100$$

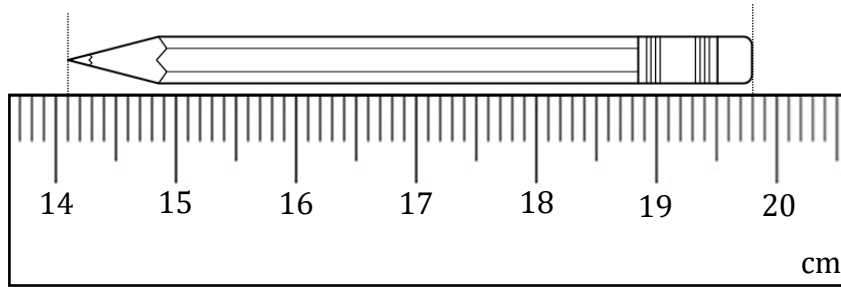
$$= 300 \text{ people}$$

Answer _____ 300 _____ people

Kerwin Springer

11. What is the length of the pencil shown below?

[1]

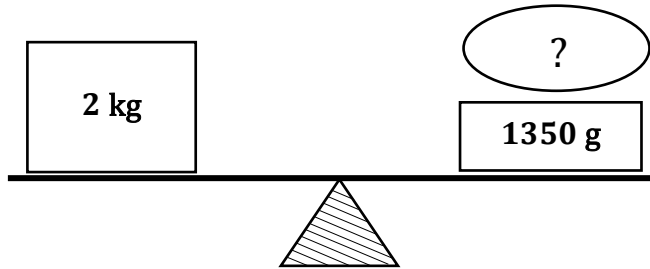


$$\begin{aligned} \text{Length of pencil} &= 19.8 - 14.1 \\ &= 5.7 \text{ cm} \end{aligned}$$

$$\begin{array}{r} 19.8 \\ - 14.1 \\ \hline 5.7 \end{array}$$

Answer 5.7 cm

12. Two objects balance the scale below. What is the mass of the oval object? [1]



$$1 \text{ kg} = 1000 \text{ g}$$

$$2 \text{ kg} = 2 \times 1000$$

$$= 2000 \text{ g}$$

Now,

$$2000 - 1350 = 650 \text{ g}$$

Answer _____ **650** _____ g

13. Jimin and his friends will be on tour from the 7th of June until the 28th of June. How many weeks will they be away on tour? [1]

$$\text{Number of days} = 28 - 7$$

$$= 21 \text{ days}$$

$$\text{Number of weeks} = 21 \div 7$$

$$= 3 \text{ weeks}$$

Answer _____ 3 _____ weeks

14. How many 15 ml doses would you get from a cough syrup bottle of 900 ml? [1]

$$\text{Number of doses} = \frac{900}{15}$$

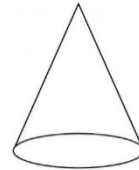
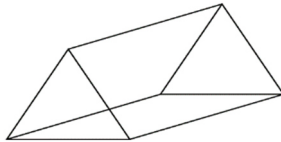
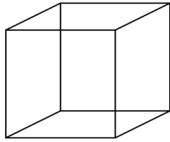
$$= \frac{180}{3}$$

$$= 60$$

Answer _____ 60 _____ doses

15. Which solid below has a flat surface and a curved surface?

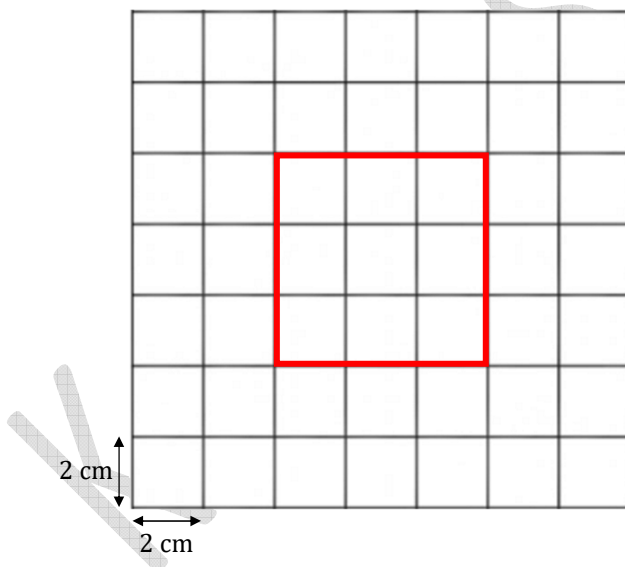
[1]



Answer _____ **cone** _____

16. Draw a square on the 2 cm grid below with an area of 36 cm^2 .

[1]

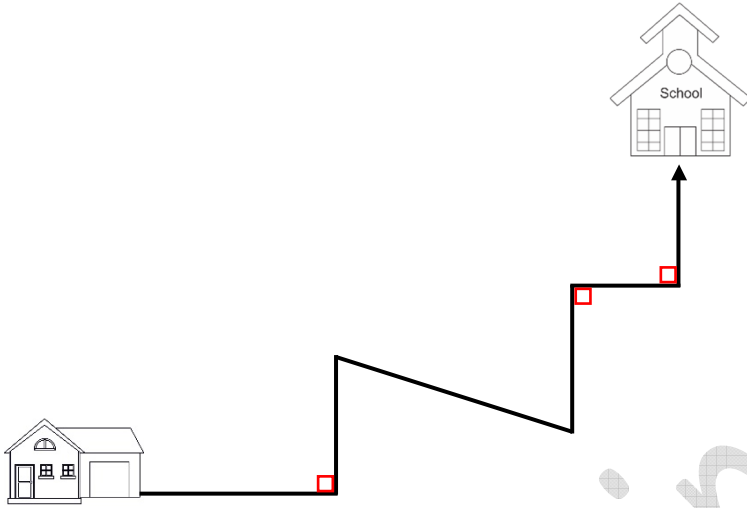


$$\sqrt{36} = 6$$

$$6 \div 2 = 3 \text{ on each side}$$

17. How many quarter turns must Larry make to get to school?

[1]



Answer _____ 3 _____ quarter turns

Kerwin Springer

18. Find the mean of the numbers below.

[1]

20	25	44	66	25
----	----	----	----	----

$$\begin{aligned} \text{Sum of numbers} &= 20 + 25 + 44 + 66 + 25 \\ &= 180 \end{aligned}$$

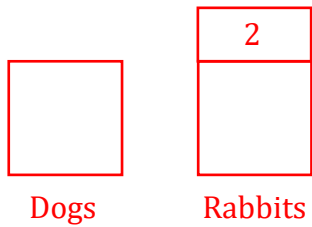
There are 5 numbers.

$$\begin{aligned} \text{Mean} &= \frac{180}{5} \\ &= 36 \end{aligned}$$

Answer _____ **36** _____

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19. Charlotte has 8 pets. All of her pets are either rabbits or dogs. She has two more rabbits than dogs. How many dogs does Charlotte have? [1]



Remove excess = $8 - 2$

Remove excess = 6

2 blocks = 6


1 block = $\frac{6}{2}$
 = 3

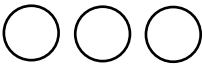



Answer 3 dogs

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20. Complete the pictograph below for a class of 24 students.


[1]

 = 2 students

Desert	Students
Chocolate	
Cake	
Cotton Candy	
Ice-cream	

Number of circles = 9

1  = 2 students

9  = 9×2

= 18 students

Number of students that like cake = $24 - 18$

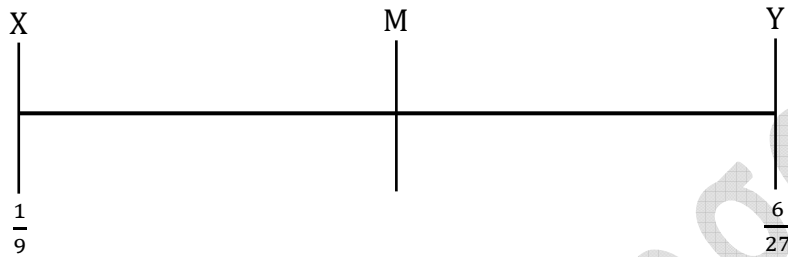
= 6 students

6 students = $\frac{6}{2}$

= 3 

SECTION II

21. The diagram shows a number line. Point X equals $\frac{1}{9}$ and point Y equals $\frac{6}{27}$.



What fraction does point M represent if it is midway between points X and Y? [2]

$$\begin{aligned} \text{Distance between X and Y} &= \frac{6}{27} - \frac{1}{9} \\ &= \frac{6}{27} - \frac{3}{27} \\ &= \frac{3}{27} \\ &= \frac{1}{9} \end{aligned}$$

$$\begin{aligned} \text{Halfway} &= \frac{1}{9} \div 2 \\ &= \frac{1}{9} \times \frac{1}{2} \\ &= \frac{1}{18} \end{aligned}$$

Now,

$$\begin{aligned} M &= \frac{1}{9} + \frac{1}{18} \\ &= \frac{2}{18} + \frac{1}{18} \\ &= \frac{3}{18} \\ &= \frac{1}{6} \end{aligned}$$

Answer _____ $\frac{1}{6}$ _____

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22. For every 7 red ribbons in a pattern, 5 blue ribbons are used. When 60 ribbons are used altogether, how many of them would be blue? [2]

$$\begin{aligned} \text{In each set, number of ribbons used} &= 7 + 5 \\ &= 12 \end{aligned}$$

$$\begin{aligned} \text{Number of sets} &= 60 \div 12 \\ &= 5 \end{aligned}$$

$$\begin{aligned} \text{Number of blue ribbons used} &= 5 \times 5 \\ &= 25 \text{ ribbons} \end{aligned}$$

Answer _____ 25 _____ ribbons

23. In each party bag, there are 5 candies and 3 mints. Altogether 224 candies and mints were put into party bags. How many party bags were packed? [2]

Each party bag has = $5 + 3$

= 8 items

Altogether, there are 224 candies and mints.

Number of party bags = $\frac{224}{8}$

= 28

Answer _____ 28 _____ party bags

Kerwin Springer

24. A tape is $9\frac{1}{2}$ m long. A part 2m 35cm long is cut off, then a next 3m 60cm is cut off.

How much tape remains?

[2]

$$\begin{array}{r}
 2 \text{ m } 35 \text{ cm} \\
 + 3 \text{ m } 60 \text{ cm} \\
 \hline
 5 \text{ m } 95 \text{ cm}
 \end{array}$$

Now,

$$\begin{array}{r}
 9 \text{ m } 50 \text{ cm} \\
 - 5 \text{ m } 95 \text{ cm} \\
 \hline
 3 \text{ m } 55 \text{ cm}
 \end{array}$$

Answer 3 m 55 cm

Kerwin Springer

25. One stamp costs 43¢. Two stamps cost 86¢. Three stamps cost \$1.29. If the cost of each stamp remains the same, how much would 16 stamps cost? [2]

$$1 \text{ stamp} = 43\text{¢}$$

$$16 \text{ stamps} = 16 \times 43\text{¢}$$

$$= \$6.88$$

$$\begin{array}{r} 16 \\ \times 43 \\ \hline 640 \\ 48 \\ \hline 668 \end{array}$$

Answer \$ 6.88

Kerwin Springer

26. A bill at a restaurant was \$350.00 for a family meal. The family wanted to give a tip of 5%. How much money did the family pay altogether? [2]

$$\text{Bill} = \$350.00$$

$$\text{Tip} = 5\% \text{ of bill}$$

$$= 5\% \text{ of } \$350.00$$

$$= \frac{5}{100} \times \frac{350}{1}$$

$$= \frac{1}{2} \times \frac{35}{1}$$

$$= \$17.50$$

$$\text{Total} = \$350 + \$17.50$$

$$= \$367.50$$

Answer \$ 367.50

27. A recipe required $\frac{5}{8}$ cup of sugar to make a pastry. The baker made 9 pastries.

(a) What is the total amount of sugar used? [1]

$$1 \text{ pastry} = \frac{5}{8} \text{ cups of sugar}$$

$$9 \text{ pastries} = \frac{5}{8} \times 9$$

$$= \frac{45}{8}$$

$$= 5 \frac{5}{8} \text{ cups of sugar}$$

Answer _____ $5 \frac{5}{8}$ _____ cups

(b) Between which two whole numbers does your answer lie? [1]

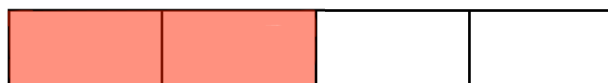
The number $5 \frac{5}{8}$ lies between 5 and 6.

Answer _____ 5 and 6 _____

28. Andrew shaded part of the shape below to represent a fraction.



(a) Shade the shape below to represent the equivalent fraction to Andrew's. [1]



In the shape above, 3 parts are shaded out of 6.

$$\frac{3}{6} = \frac{1}{2}$$

$$\text{Equivalent} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$$

To represent the equivalent fraction to Andrew's, 2 parts must be shaded out of the 4 parts.

(b) Use the fractions and an explanation to tell how you know that your answer is correct. [2]

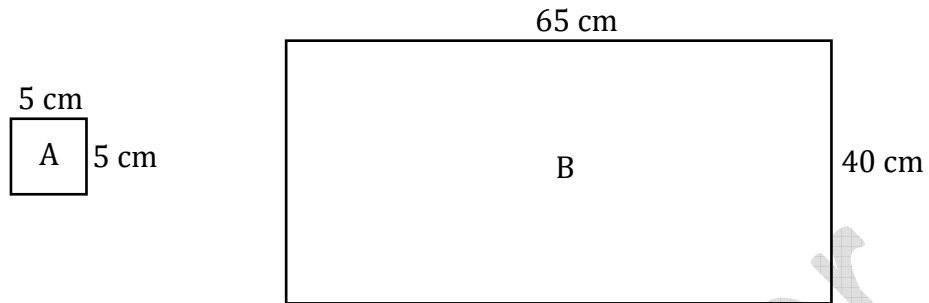
$$\frac{3}{6} = \frac{1}{2} \quad \text{and} \quad \frac{2}{4} = \frac{1}{2}$$

$\frac{3}{6}$ and $\frac{2}{4}$ are equivalent fractions equal to $\frac{1}{2}$.

Answer _____ $\frac{3}{6}$ and $\frac{2}{4}$ are equivalent fractions equal to $\frac{1}{2}$ _____

29. How many of Shape A are needed to fully cover Shape B?

[3]



$$\begin{aligned} \text{Area of Shape B} &= 65 \times 40 \\ &= 2600 \text{ cm}^2 \end{aligned}$$

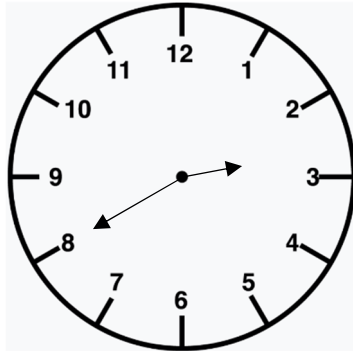
$$\begin{aligned} \text{Area of Shape A} &= 5 \times 5 \\ &= 25 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{Number of Shape A} &= 2600 \div 25 \\ &= 104 \end{aligned}$$

Answer 104

30. The clock below is $\frac{3}{4}$ of an hour slow.

[2]



What is the correct time?

$$\begin{aligned} \frac{3}{4} \text{ of an hour} &= \frac{3}{4} \times \frac{60}{1} \\ &= 45 \text{ minutes} \end{aligned}$$

The time on the clock is 2:40.

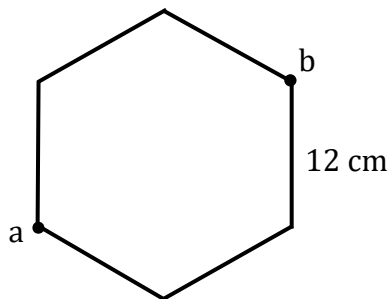
Now,

$$\begin{array}{r} 2:40 \\ + 0:45 \\ \hline 2:85 \\ - \quad 60 \\ \hline 3:25 \end{array}$$

The correct time is 3:25.

Answer _____ 3:25 _____

31. The shape below is made up of 6 sticks of equal length.



(a) What is the name of this shape?

[1]

The shape has 6 sides.

It is a hexagon.

Answer _____ hexagon _____

(b) Calculate the perimeter of half of the shape (from point a to b).

[2]

$$\text{Perimeter of shape} = 6 \times 12$$

$$= 72 \text{ cm}$$

$$\text{Perimeter of half of the shape} = \frac{72}{2}$$

$$= 36 \text{ cm}$$

Answer _____ 36 _____ cm

32. In a class, each student has 6 notebooks, 2 erasers and 4 pencils.

(a) The entire class has 96 notebooks. How many students are in the class? [1]

There are 96 notebooks.

Each student has 6 notebooks.

$$\begin{aligned} \text{Number of students} &= 96 \div 6 \\ &= 16 \end{aligned}$$

Answer _____ 16 _____ students

(b) How many more pencils than erasers are there? [2]

$$\begin{aligned} \text{Number of pencils} &= 16 \times 4 \\ &= 64 \end{aligned}$$

$$\begin{aligned} \text{Number of erasers} &= 16 \times 2 \\ &= 32 \end{aligned}$$

$$\begin{aligned} \text{Difference} &= 64 - 32 \\ &= 32 \end{aligned}$$

Answer _____ 32 _____ pencils

33. Consider the pattern below.

Pattern 1



Pattern 2



Pattern 3



(a) Draw Pattern 4 in the space below.

[2]

Pattern 4 is shown below:



(b) How many lines will be used to make Pattern 8?

[1]

Pattern 1 = 2 lines

Pattern 2 = 3 lines

Pattern 3 = 4 lines

⋮

Pattern 8 = 9 lines

Answer _____ 9 _____ lines

34. (a) Draw a trapezium in the space below.

[1]

A trapezium is shown below:



(b) Write two properties of a trapezium.

[2]

Properties of a trapezium include:

(1) one pair of opposite sides are parallel

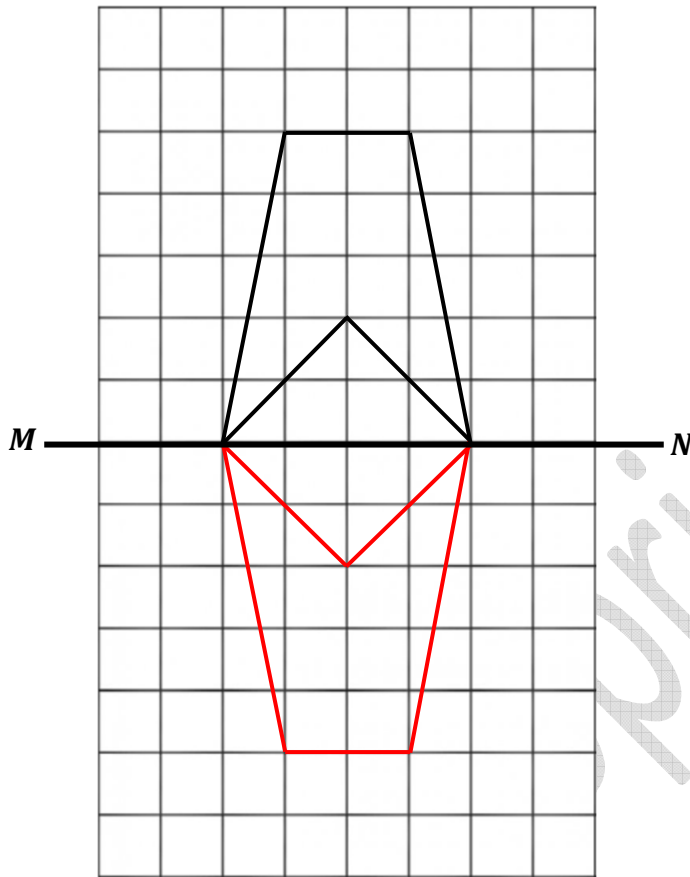
(2) it has 4 sides

(3) it has one line of symmetry

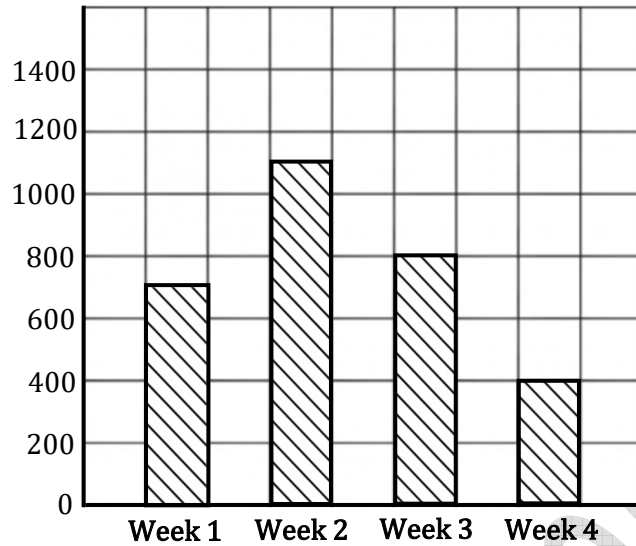
Answer _____ any two properties listen above _____

35. Complete the shape using the line MN as the line of symmetry.

[3]



36. The chart below shows the number of persons who were at the mall in four weeks.



How many persons went to the mall during these four weeks?

[2]

In week 1, number of persons who went to the mall = 700

In week 2, number of persons who went to the mall = 1100

In week 3, number of persons who went to the mall = 800

In week 4, number of persons who went to the mall = 400 +

Total = 3000

Answer _____ **3000** _____ persons

SECTION III

37. An incomplete bill for some items is shown below.

(a) Write in the missing pieces of information.

[3]

Item and quantity	Cost
6 bowls @ \$11.40 each	(i) \$ <u>68.40</u>
9 cups @ 3 for \$18.00	(ii) \$ <u>54.00</u>
18 forks @ \$20.00 per dozen	(iii) \$ <u>30.00</u>
Total	\$152.40

(i) 1 bowl costs = \$11.40

$$\begin{aligned} 6 \text{ bowls cost} &= \$11.40 \times 6 \\ &= \$68.40 \end{aligned}$$

(ii) 3 cups cost = \$18.00

$$\text{Now, } 9 \div 3 = 3 \text{ groups}$$

$$\begin{aligned} \text{So, 9 cups cost} &= \$18.00 \times 3 \\ &= \$54.00 \end{aligned}$$

(iii) 12 forks = \$20.00

$$\text{Now, } 18 \div 12 = 1.5 \text{ groups}$$

$$\begin{aligned} \text{So, 18 forks cost} &= \$20.00 \times 1.5 \\ &= \$30.00 \end{aligned}$$

(b) A discount of $12\frac{1}{2}\%$ has been given to the total cost.

Calculate the final cost.

[1]

$$\text{Discount} = 12\frac{1}{2}\%$$

$$= \frac{1}{8}$$

$$\text{Amount of discount} = \frac{1}{8} \times \frac{152.40}{1}$$

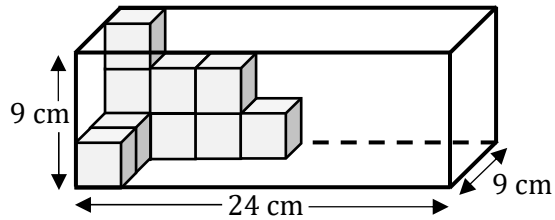
$$= \$19.05$$

$$\text{Final cost} = \$152.40 - \$19.05$$

$$= \$133.35$$

Answer \$ 133.35

38. The larger box contains cubes of equal size. Each cube measures 3 cm on all sides.



(a) How many cubes are in the box? [1]

By counting, there are 10 cubes in the box.

Answer _____ 10 _____ cubes

(b) How many more cubes of the same size are needed to fill the box? [3]

Number of cubes along length = $24 \div 3$

$$= 8$$

Number of cubes along width = $9 \div 3$

$$= 3$$

Number of cubes along height = $9 \div 3$

$$= 3$$

$$\begin{aligned}\text{Number of cubes that can be in the box} &= 8 \times 3 \times 3 \\ &= 72 \text{ cubes}\end{aligned}$$

There are already 10 cubes in the box.

$$\begin{aligned}\text{Hence, number of more cubes needed to fill the box} &= 72 - 10 \\ &= 62 \text{ cubes}\end{aligned}$$

Answer _____ **62** _____ cubes

Kerwin Springer

39. The incomplete report card shows Amber's performance on some tests.

Subject	Mark out of 100
Mathematics	79
English	81
History	
Art	68

(a) What is Amber's mean for the three subjects shown? [2]

$$\begin{aligned} \text{Number of marks} &= 79 + 81 + 68 \\ &= 228 \end{aligned}$$

$$\text{Number of subjects} = 3$$

$$\begin{aligned} \text{Mean} &= 228 \div 3 \\ &= 76 \end{aligned}$$

Answer 76

(b) Amber's mean on all four subjects was 72. Calculate her mark for History. [2]

$$\text{Total marks} = 72 \times 4$$

$$= 288$$

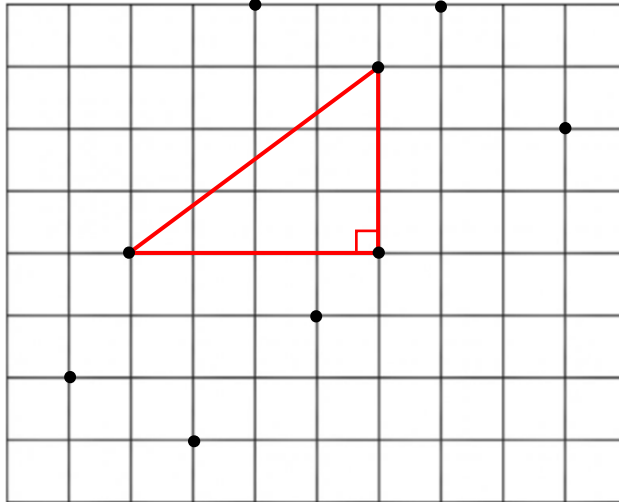
$$\text{Mark for History} = 288 - 228$$

$$= 60$$

Answer _____ 60 _____

Kerwin Springer

40. (a) On the square grid below, join three dots to form a triangle with one right angle and three unequal sides. [3]



- (b) Name the type of triangle based on the information about its **sides**. [1]

The information given about the sides is that all three sides are unequal.

Hence, this is a scalene triangle.

Answer _____ scalene triangle _____