Sample Exam 6 – Solutions

Session 6   **Total: 75 marks**

SECTION I

1. Write in figures:

    Five hundred and seventy-six thousand and twelve.   [1]

    Five hundred thousand   =   500 000
    Seventy-six thousand   =   76 000 +
    Twelve   = _____12
                                  576 012

    Answer_____ 576 012 _____

2. State the VALUE of the underlined digit in the following numeral.

                          1 80<u>9</u> 254   [1]

    Placing the digits according to their place values:

M	HTH	TTH	TH	H	T	O
1,000,000	100,000	10,000	1,000	100	10	1
1	8	0	9	2	5	4

    Value of underlined digit $= 9 \times 1000$
    $= 9000$

    Answer_____ 9000 _____

3. What is the SMALLEST even number that can be formed using the digits 5, 1, 2 and 8? [1]

An even number is a number that ends in 0, 2,4,6 and 8.

Based on the digits given the number should end in either 2 or 8.

Since we are trying to create the smallest even number our last digit should be 8.

Next, we rearrange the remaining digits (5, 1 and 2) in ascending order.

Therefore, the smallest even number we can create is 1,258.

Answer_____ 1258 _____

4. Round 9 482 to the nearest HUNDRED. [1]

When rounding a number to the nearest hundred, the most important figure that we must look at is the **TENS.** Once that figure is 5 or more, then we round it up to the next hundred. If it is 4 or less, then we round it down to the lower hundred.

Th	H	T	O
9	4	8	2

For the question, the tens figure in 9 482 is 8, which is greater than 5. Therefore, we round it up to the next hundred.

Answer_____ 9500 _____

5. Calculate:

$$25.6 \div 0.08$$ [1]

Move the decimal point two spaces in both numbers and complete the division as if operating on two integers.

		T	H	T	O
8		2	5	6	0
			3	2	0

Answer_____ 320 _____

6. Express $\frac{3}{8}$ as a percentage. [1]

$$\frac{3}{\underset{2}{\cancel{8}}} \times \frac{\overset{25}{\cancel{100}}}{1} = \frac{75}{2}$$

$$= 37.5\%$$

Answer_____ 37.5 _____ %

7. Every ninth shopper at the newly opened supermarket receives a discount. How many discounts were given on Tuesday if there were 76 shoppers at the supermarket?   [1]

Number of shoppers $= 76$ shoppers

Every ninth shopper receives a discount.

Number of discounts given $= \dfrac{76}{9}$

$= 8$ discounts

Answer_____ 8 _____ discounts

8. ☐ and △ represent two numbers. [1]

If ☐ × ☐ = 36

And ☐ + △ = 11

What is the value of △ ?

☐ × ☐ = 36

$☐^2$ = 36

☐ = $\sqrt{36}$

☐ = 6

☐ + △ = 11

△ = 11 – 6

= 5

Answer_____ 5 _____

9. $5\frac{4}{7} - 2\frac{2}{3} =$ [1]

Whole Numbers

= 5 – 2

= 3

= 2

Fractions

$= \frac{4}{7} - \frac{2}{3}$

$= \frac{12 - 14}{21}$

$= \frac{12}{21} - \frac{14}{21}$

$= \frac{21 + 12}{21} - \frac{14}{21}$

$= \frac{33}{21} - \frac{14}{21}$

$= \frac{19}{21}$

1

Answer_____ $2\frac{19}{21}$ _____

10. State the TOTAL value of the bills and coins shown below. [1]

| $100 | | $1 | | $10 | | $20 |

| 50¢ | 25¢ | 10¢ | 25¢ | 5¢ | 5¢ |

Bills ($)	**Coins (¢)**
100	50
1	25
10	10
20	25
$131	5
	5
	120 ¢

$$Total = \$ 1\ 3\ 1\ .\ 0\ 0$$
$$\$ \qquad 1\ .\ 2\ 0$$
$$\$ 1\ 3\ 2\ .\ 2\ 0$$

Answer $_____ 132.20 _____
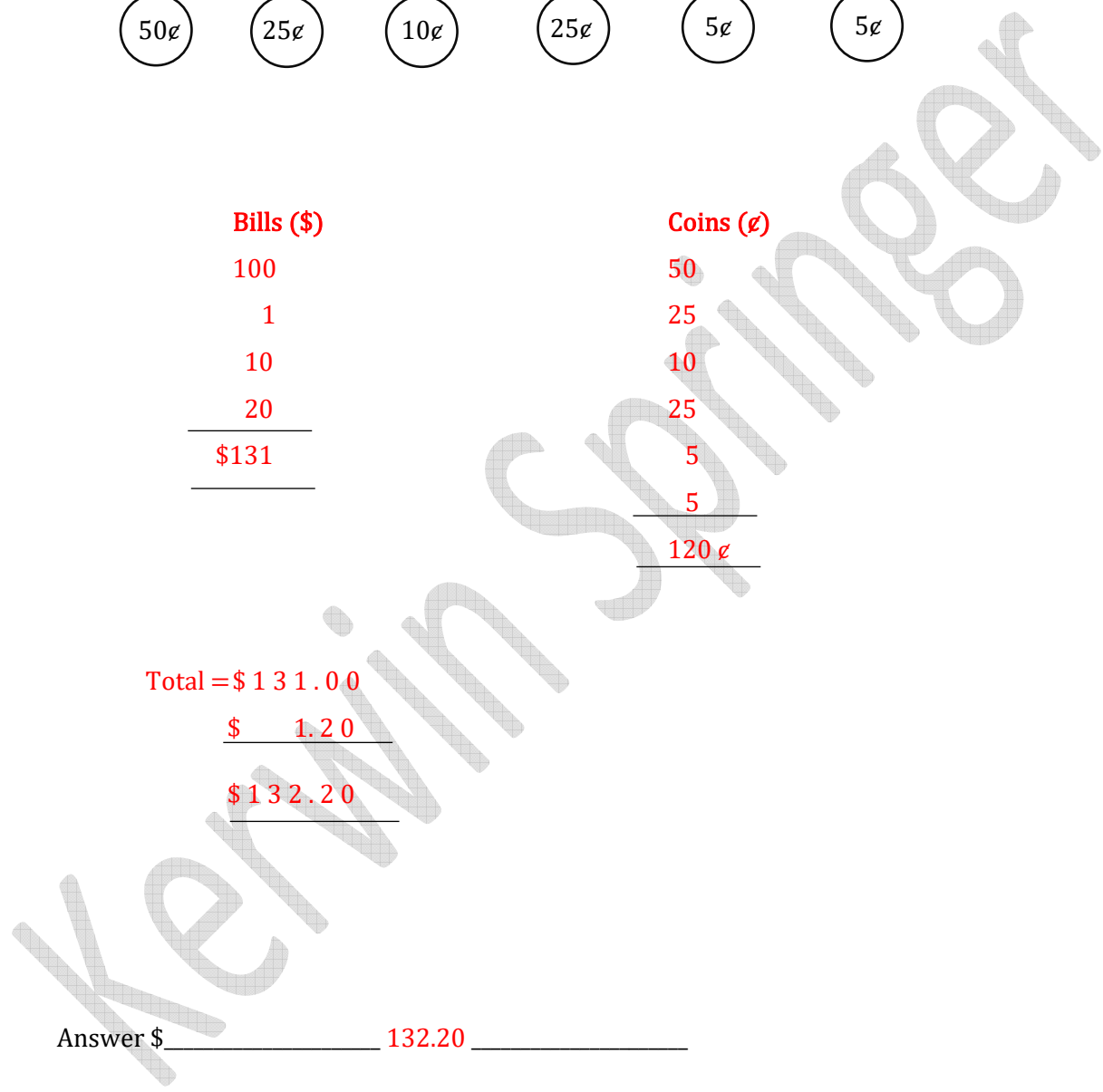
11. Complete the following sequence. [1]

4, 7, 13, 22, ___ 34 ____

$4 + 3 = 7$

$7 + 6 = 13$

$13 + 9 = 22$

$22 + 12 = 34$

12. Siam bought a videogame for $350 and made a profit of $185 upon reselling it.
What was the selling price of the videogame? [1]

Cost Price = $350

Profit = $185

Selling Price = Cost Price + Profit

$\qquad$ = $350 + $185

$\qquad$ = $535

Answer $_____ 535 _____

13. The analog clock shown below is fifteen minutes ahead of real time.

State the CORRECT time on the digital clock. [1]

Analog clock
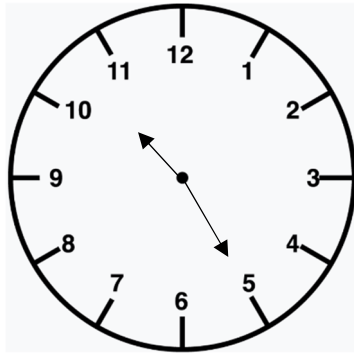
Digital clock

10 : 10

Time shown on analog clock = 10:25

Correct time = 10:25 – 0:15

= 10:10

14. Calculate the perimeter of the rectangle shown below. [1]

4.8 m

12.6 m
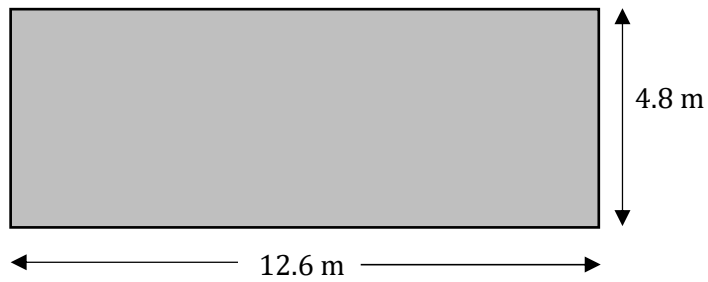
Perimeter of rectangle $= 2 \times (L + W)$

$\qquad = 2 \times (12.6 + 4.8)$

$\qquad = 2 \times 17.4$

$\qquad = 34.8$ m

Answer_____ 34.8 _____ m

15. The light bulb shown below has a mass of 240 grams.

What is the mass in kilograms (kg) of 3 identical light bulbs? [1]

240 g

Mass of 1 light bulb = 240 grams

Mass of 3 light bulbs = 3 × 240

= 720 grams

720 ÷ 1000 = 0.72 kg

Answer_____ 0.72 _____ kg

16. State the length of the lipstick shown below to the nearest centimetre. [1]
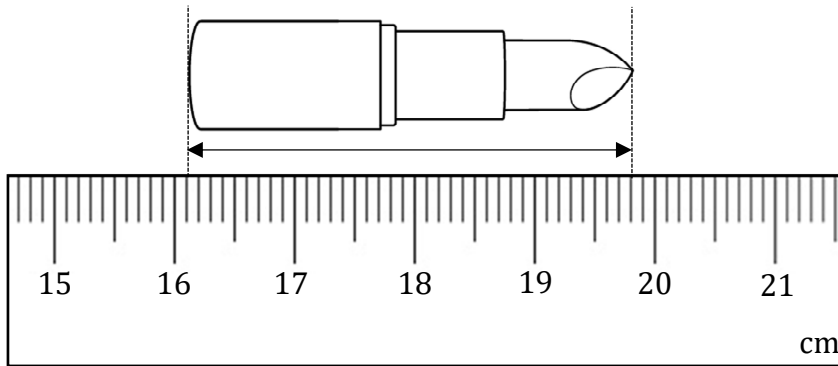
Length of lipstick = 19.8 – 16.1

= 3.7

= 4 to the nearest centimetre

Answer_____ 4 _____ cm

17. Which quadrilateral below has no right angles? [1]
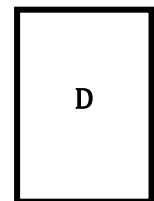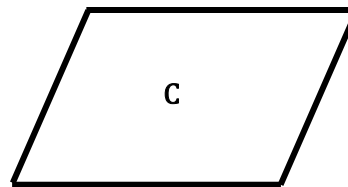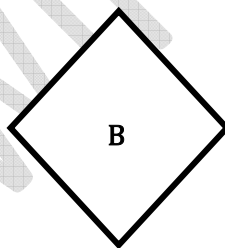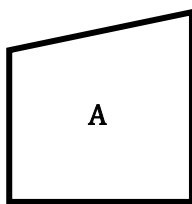
Shape A has 2 right angles.

Shape B has 4 right angles.

Shape D has 4 right angles.

Answer_____ Shape C _____

18. Faith was standing facing East. She turned in an anticlockwise direction and is now facing South.

N

W ———————————+——————————— E

S
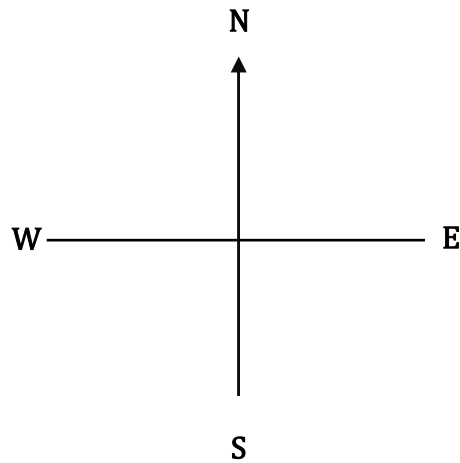
Through how many degrees did Faith turn?   [1]

Faith made three $\frac{1}{4}$ turns.

Number of degrees Faith turned = 3 × 90°

turned = 270°

Answer_____ 270 _____ degrees

19. What is the modal shoe size for the following set of shoe sizes? [1]

5	6.5	6.5	5.5	5
6	6	6.5	5.5	6
5	6.5	6	5	6
5.5	6	6.5	6	5

Shoe Size	Frequency
5	5
5.5	3
6	7
6.5	5

Modal means the one that occurs most frequently.

Based on the table above it can be seen that shoe size 6 is the modal shoe size as it had the highest frequency.

Answer_____ 6 _____

20. The bar graph shows the preferred chocolate bar of 32 students.

Preferred Chocolate Bar of Students
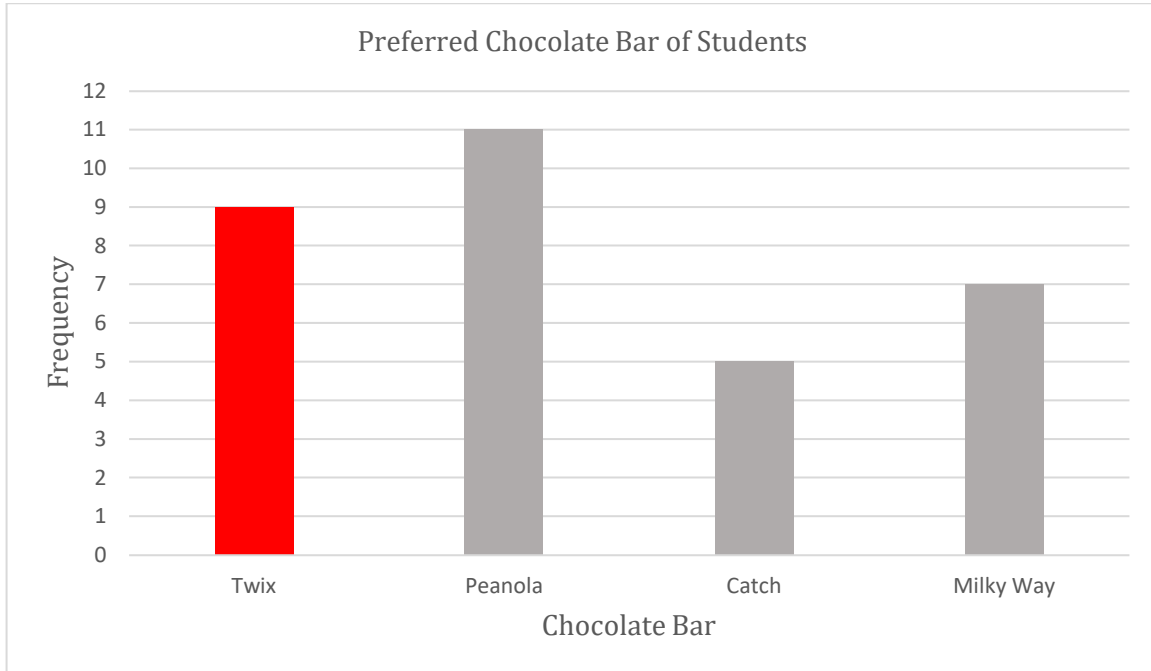
Complete the bar graph to show the number of students who preferred the Twix bar.　　　[1]

Total number of students = 32

Number of students who preferred Peanola = 11 students

Number of students who preferred Catch = 5 students

Number of students who preferred Milky Way = 7 students

Number of students who preferred Twix = 32 − (11 + 5 + 7)

= 32 − 23

= 9 students

SECTION II

21. Four fractions are given below. [2]

$$\frac{7}{12} \ , \ \frac{1}{6} \ , \ \frac{2}{3} \ , \ \frac{1}{4}$$

Which THREE of these fractions when added together result in a whole number?

The LCM of 12, 6, 3 and 4 is 12.

$$\frac{7}{12} \ , \ \frac{1}{6} \ , \ \frac{2}{3} \ , \ \frac{1}{4}$$

$$\frac{7}{12} \ , \ \frac{2}{12} \ , \ \frac{8}{12} \ , \ \frac{3}{12}$$

$$\frac{7}{12} \ + \ \frac{2}{12} \ + \ \frac{3}{12} = \frac{12}{12}$$

$$= \ 1$$

Answer_____ $\frac{7}{12} , \frac{1}{6}$ and $\frac{1}{4}$ _____

22. 24% of a number is 66. What is the number? [2]

24% of the number $= 66$

Whole number $= \dfrac{100}{24} \times \dfrac{66}{1}$

$\qquad\qquad = 275$

Answer_____ 275 _____

23. 12-seater maxi-taxis were hired to transport Mr. Springer's Mathematics class on a field trip.
The transportation cost was $65 for each student.
If the total cost of transportation was $3120, how many 12-seater maxi-taxis were
hired? [2]

Transportation cost per person $= \$65$

Total transportation cost $= \$3120$

Number of persons who went on the field trip $= \dfrac{3120}{65}$

$\qquad\qquad\qquad\qquad = 48$ persons

Capacity of 1 maxi-taxi $= 12$ persons

Number of maxi-taxis hired for 48 persons $= \dfrac{48}{12}$

$\qquad\qquad\qquad\qquad = 4$ maxi-taxis

Answer_____ 4 _____ maxi-taxis

24. The population of Cedros is 3500 people. 62% of the population are adults. 60% of the adults are men, how many women are there in Cedros? [2]

Population of Cedros = 3500 people

Number of adults $= \dfrac{62}{100} \times \dfrac{3500}{1}$

$\qquad\qquad\qquad = 2170$ adults

Percentage of adults who are women = 100% - Percentage of adults who are men

$\qquad\qquad\qquad\qquad\qquad\qquad = 100\% - 60\%$

$\qquad\qquad\qquad\qquad\qquad\qquad = 40\%$

Number of women $= \dfrac{40}{100} \times \dfrac{2170}{1}$

$\qquad\qquad\qquad\quad = 868$ women

Answer _____ 868 _____ women

25. The volume of the box below is $576\ cm^3$. What is its length? [2]
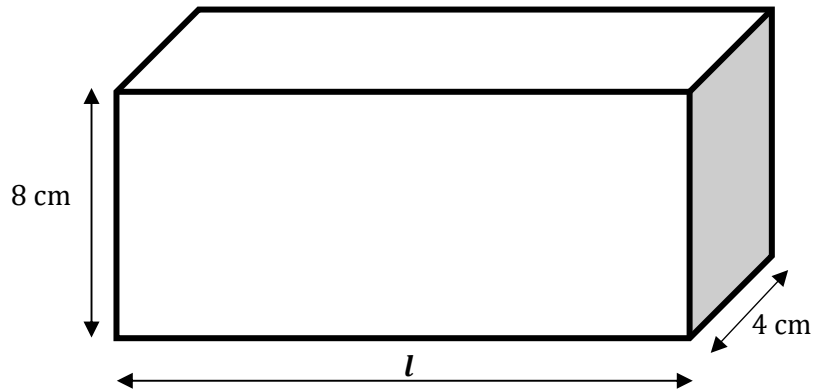
Volume of cuboid = Length × Width × Height

Volume of cuboid = L × W × H

$576\ cm^3$ = L × 4 × 8

$L = \dfrac{576}{4 \times 8}$

$= \dfrac{576}{32}$

= 18 cm

Answer_____ 18 _____ cm

26. The product of two numbers is 7. One of them is $4\frac{1}{12}$. What is the other number? [3]

The product of the two numbers $= 7$

$4\frac{1}{12} \times$ the other number $= 7$

The other number $= 7 \div 4\frac{1}{12}$

$\qquad = 7 \div \frac{49}{12}$

$\qquad = \frac{7}{1} \times \frac{12}{49}$

$\qquad = \frac{84}{49}$

$\qquad = 1\frac{35}{49}$

$\qquad = 1\frac{5}{7}$

Answer _____ $1\frac{5}{7}$ _____

27. Maya drove 1 hour and 15 minutes to get to MovieTowne at C3 Center. She watched a movie that ran for 2 hours and 15 minutes and then took 1 hour and 7 minutes to return home. Whilst at MovieTowne Maya spent 20 minutes at concessions to buy her snacks.

If Maya returned home at 5:02 p.m., what time did she leave home to go to MovieTowne?   [3]

Commute to arrive at MovieTowne = 1 hour   15 minutes

Duration of movie = 2 hours   15 minutes   +

Time spent buying snacks = 0 hours   20 minutes

Commute to return home = 1 hour   7 minutes
_____

TOTAL time taken = 4 hours 57 minutes
_____

We need to subtract 4 hours and 57 minutes from 5:02 pm to find the time Maya left her home to go to MovieTowne.

We can rewrite 5:02 pm as 17:02 since the 12-hour am period has elapsed.

```
  6  6 2
1 7 : 0 2   -
  4 : 57
_____
1 2 : 05
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Answer_____ 12:05 _____ p.m.

28. Mr. Prince rented the holiday villa at a rate of $780 per day for 6 days. He was required to pay a one-time cleaning fee equivalent to half of the daily rate. How much did it cost him altogether? [2]

Daily rental rate = $780

Cost of renting villa for 6 days = 6 × $780
$$= \$4680$$

Cleaning fee $= \frac{1}{2} \times$ Daily rental rate
$$= \frac{1}{2} \times \$780$$
$$= \$390$$

Total cost = Cost of renting villa for 6 days + Cleaning fee
$$= \$4680 + \$390$$
$$= \$5070$$

Answer $_____ 5070 _____

29. (a) Calculate the total weight, in kilograms, of the two items shown below.   [1]
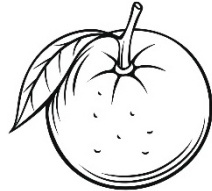
900 g

2.6 kg

Converting 900 g to kg:

900 ÷ 1000 = 0.9 kg

Total weight of two items = 0.9 + 2.6

= 3.5 kg

Answer _____ 3.5 _____ kilograms

(b) Draw the position of the needle on the scale below when the two items are placed on the scale
simultaneously. [1]
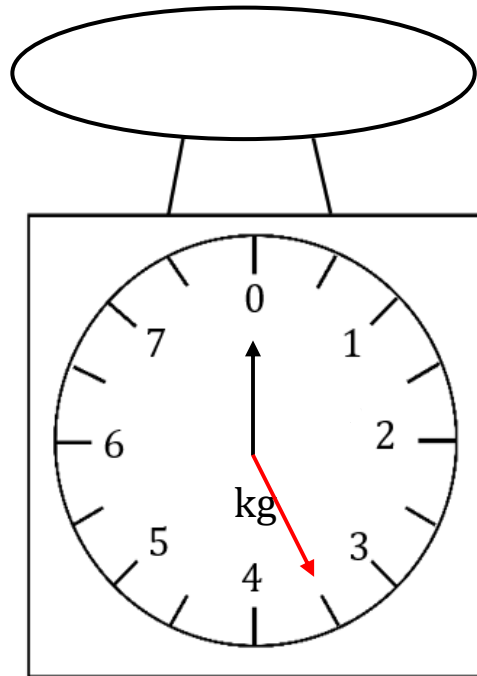
30. Last Saturday Malachi decided to hike to a waterfall. From his home he drove 0.56 km of the distance until he reached the hiking trail and then walked the rest.

(a) What fraction of the distance did Malachi drive? [1]

$$\text{Fraction of the distance Malachi drove} = \frac{0.56}{1.00}$$

$$= \frac{56}{100}$$

$$= \frac{14}{25}$$

Answer _____ $\frac{14}{25}$ _____

(b) If he lives 40 km from the waterfall, what distance did he travel by foot? [2]

$$\text{Fraction of the distance Malachi travelled by foot} = 1 - \frac{14}{25}$$

$$\text{Fraction of the distance Malachi travelled by foot} = \frac{25}{25} - \frac{14}{25}$$

$$= \frac{11}{25}$$

$$\text{Distance Malachi travelled by foot} = \frac{11}{25} \times 40$$

$$= 17.6 \text{ km}$$

Answer _____ 17.6 _____ kilometres

31. A square and a rectangle (**not drawn to scale**) are shown below. The length of one side of the square is half the length of the rectangle.

15 cm

4 cm | Rectangle |
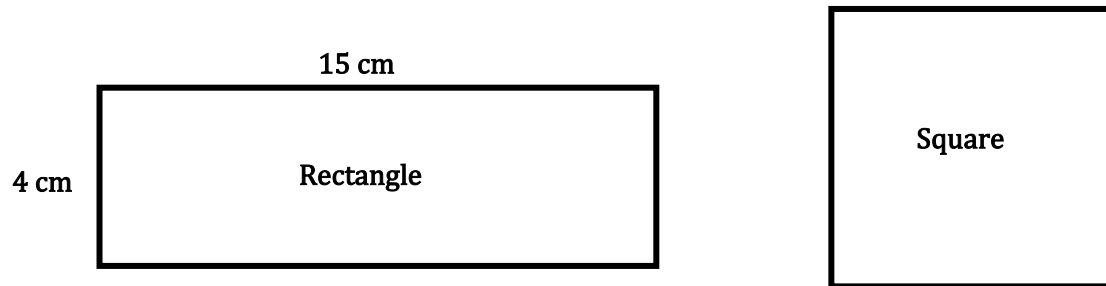
Square

(a) Calculate the area of the square. [1]

Length of one side of square $= \dfrac{1}{2} \times 15$

$= 7.5$ cm

Area of square $=$ Side $\times$ Side

$= 7.5 \times 7.5$

$= 56.25$ cm²

Answer _____ 56.25 _____ cm²

(b) Calculate the difference in perimeter of the two shapes.   [2]

Perimeter of rectangle $= 2 \times (L + W)$

$= 2 \times (15 + 4)$

$= 2 \times 19$

$= 38$ cm

Perimeter of square $= S \times 4$

$= 7.5 \times 4$

$= 30$ cm

Difference in perimeter $= 38 – 30$

$= 8$ cm

Answer _____ 8 _____ cm

32. The table below shows the number of practice tests completed by students in the Standard 5 classes over the course of 1 week at Edinburgh Government Primary School.

DAY	Monday	Tuesday	Wednesday	Thursday	Friday	TOTAL
NO. OF PRACTICE TESTS	76	68	70	__79__	72	365

(a) Complete the table above. [1]

No. of tests completed on Thursday = 365 – (76 + 68 + 70 + 72)

$$= 365 – 286$$

$$= 79 \text{ tests}$$

(b) Calculate the mean number of practice tests completed in 1 week. [1]

$$\text{Mean number of practice tests completed in 1 week} = \frac{\text{Total number of practice tests completed}}{5}$$

$$= \frac{365}{5}$$

$$= 73 \text{ practice tests}$$

Answer _____ 73 _____

33. 35 light poles were placed along a road. A length of wire 8.25 m was used between each pair of poles to connect the light poles. What was the total length of wire used? [3]

Number of poles = 35

Number of spaces between poles = Number of poles – 1

= 35 – 1

= 34 spaces

Total length of wire used = 34 × 8.25

= 280.5 m

Answer_____ 280.5 _____ m

34. Complete the shape shown below on the grid using AB as the line of symmetry. [3]
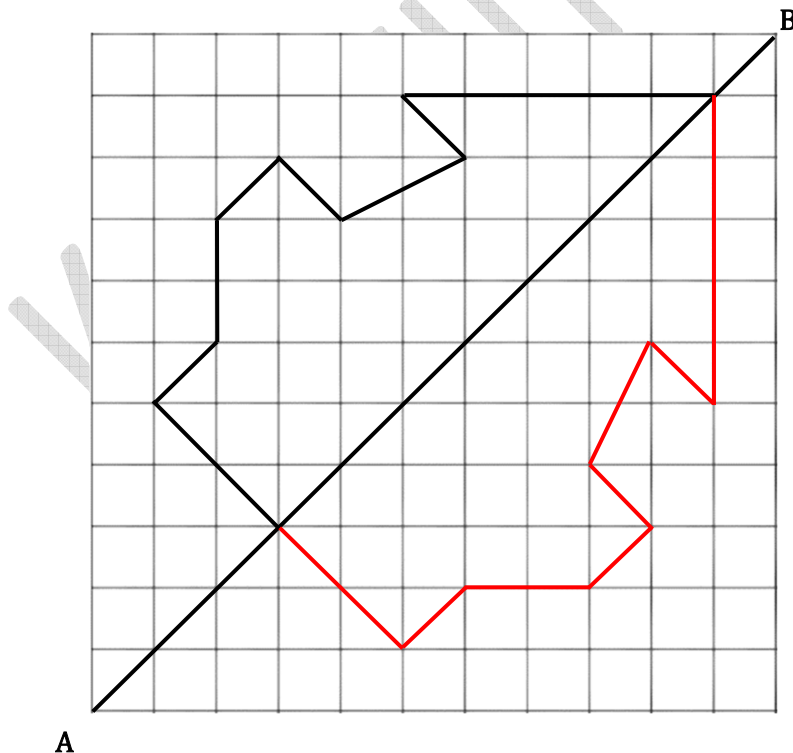
35. A certain number squared plus eight gives the same result as half the product of 24 and 22. What is the number? [3]

Product of 24 and 22 = 28 × 12

$$= 528$$

Half the product of 24 and 22 = 528 ÷ 2

$$= 264$$

Squared number + 8 = 264

Squared number = 264 – 8

$$= 256$$

Number = $\sqrt{256}$

$$= 16$$

Answer_____ 16 _____

36. Calculate the size of the angle marked *x* in the triangle shown below. [2]
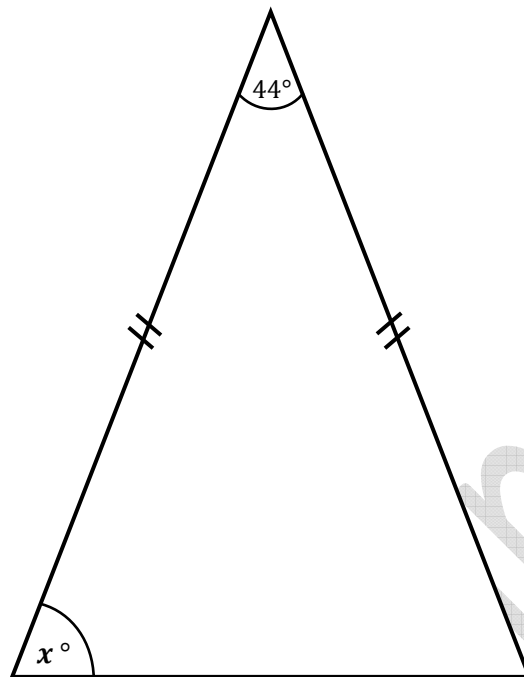
The triangle above is an isosceles triangle. Therefore, it has two equal sides and two equal angles.

The sum of all angles present in a triangle = 180°

44° + x° + x° = 180°

2x° = 180° - 44°

2x° = 136°

x° = 136° ÷ 2

x° = 68°

Answer_____ 68 _____ degrees

SECTION III

37. Maalik bought some muffins and croissants. A muffin costs $5.50 and a croissant costs $5.00.

    He bought four times as many muffins as croissants.

    The muffins cost $68 more than the croissants.

    How many muffins did Maalik buy?   [4]

For every croissant bought 4 muffins will be bought.

1 croissant = $5

4 muffins = 4 × $5.50

       = $22

Difference = 22 – 5

      = $17 ──────────────▶ Amount muffins cost more than croissant

2 croissants = 2 × $5

       = $10

8 muffins = 8 × $5.50

     = $44

Difference = 44 – 10

     = $34 ──────────────▶ Amount muffins cost more than croissants

3 croissants = 3 × $5

      = $15

12 muffins = 8 × $5.50

     = $66

Difference = 66 – 15

= \$51   →   Amount muffins cost more than croissants

4 croissants = 4 × \$5

= \$20

16 muffins = 16 × \$5.50

= \$88

Difference = 88 – 20

= \$68   →   Amount muffins cost more than croissants

Since \$68 is the difference, we are looking for, then 16 muffins were bought.

Answer_____ 16 _____ muffins

38. Tia purchased some ingredients to prepare breakfast for her family. Her bill is shown below.

Ingredient	Quantity	Unit Cost	Total Cost
Pancake Mix	1	$42.00 per box	$42.00
Bacon	2	$ 23.50 per pack	$47.00
Eggs	8	$3.25 per egg	$ 26.00
			$ 115.00

(a) Write in the missing pieces of information to complete the above bill. [3]

Total cost of bacon = $47.00

Number of packs purchased = 2 packs

Unit cost of bacon $= \dfrac{\$47.00}{2}$

$\qquad = \$23.50$ per pack

Unit cost of egg = $3.25 per egg

Number of eggs purchased = 8

Total cost of eggs $= 8 \times \$3.25$

$\qquad = \$26.00$

Total cost of all items $= \$42 + \$47 + \$26$

$\qquad = \$115$

(b) The ingredients are adequate to make breakfast for 5 persons.

How much will it cost Tia to prepare breakfast for 8 persons? [1]

Cost of making breakfast for 5 persons = $115.00

Cost of making breakfast for 1 person = $\dfrac{\$115.00}{5}$

= $23.00

Cost of making breakfast for 8 persons = 8 × $23.00

= $184.00

Answer $_____ 184.00 _____

39. There are 375 oranges in a box. Andre kept $\frac{1}{3}$ of the oranges for himself and gave his sister Precious

40% of the oranges. Their youngest sibling, Tristan, then received 0.90 of the remaining oranges.

(a) What fraction of the oranges did Tristan receive? [2]

$$40\% = \frac{2}{5}$$

$$\text{Fraction of oranges belonging to Andre and Precious} = \frac{1}{3} + \frac{2}{5}$$

$$= \frac{5+6}{15}$$

$$= \frac{11}{15}$$

$$\text{Remaining fraction of oranges} = 1 - \frac{11}{15}$$

$$= \frac{4}{15}$$

Tristan received 0.9 of the remaining oranges.

$$0.9 = \frac{9}{10}$$

$$\text{Fraction of oranges Tristan received} = \frac{9}{10} \times \frac{4}{15}$$

$$= \frac{36}{150}$$

$$= \frac{6}{25}$$

Answer_____ $\frac{6}{25}$ _____

(b) How many oranges did Tristan receive? [1]

Total number of oranges = 375 oranges

Number of oranges Tristan received $= \dfrac{6}{25} \times 375$

$$= 90 \text{ oranges}$$

Answer_____ 90 _____ oranges

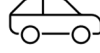(c) If Tristan sold the oranges for \$4 each, how much money did he make? [1]
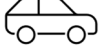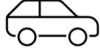
Amount of money made $= 90 \times \$4$

$$= \$360$$

Answer \$_____ 360 _____

40. A survey was conducted in Gasparillo to record the brands of cars owned by the residents.

The information that was collected is represented in the pictograph below.

Toyota	
Mitsubishi	
KIA	
Nissan	

 = 32 cars

(a) How many cars were recorded in the survey?   [1]

One = 32 cars

Number of in survey = 16

Number of cars recorded in survey = 16 × 32

= 512 cars

Answer _____ 512 _____ cars

(b) What is the difference between the most popular and least popular brand of car?   [1]

The MOST popular brand of car is KIA.

Since = 32 cars and KIA is represented by six " ".

Number of KIA cars = 6 × 32

= 192 cars

The LEAST popular brand of car is Nissan.

Since = 32 cars and Nissan is represented by two " ".

Number of Nissan cars = 2 × 32

= 64 cars

Difference between MOST and LEAST popular brand = 192 – 64

= 128 cars

Answer _____ 128 _____ cars

(c) Express the number of Toyota cars as a percentage of the total number of cars recorded in the survey. [2]

Total number of cars = 512 cars

Since = 32 cars and Toyota is represented by four " ".

Number of Toyota cars = 4 × 32

= 128 cars

Toyota cars expressed as a percentage of the total number of cars = $\dfrac{128}{512} \times 100$

= 25%

Answer _____ 25 _____ %