Sample Exam 4 - Solutions

Session 4   **Total: 75 marks**

SECTION I

1.   Write in words 502 968.   [1]

Hundreds of Thousands	Tens of Thousands	Thousands	Hundreds	Tens	Ones
5	0	2	9	6	8

Answer: Five hundred and two thousand, nine hundred and sixty-eight.

2.   State the **place value** of the underlined digit.   [1]

94 316

Tens of Thousands	Thousands	Hundreds	Tens	Ones
9	4	3	1	6

Answer: Thousands

3.   [1]

$+1$

+

	9	8	1	4
	3	5	7	3
	13	3	8	7

4. Write the missing number in the box below   [1]

$$\frac{2}{5} = \frac{8}{\boxed{20}}$$

The equivalent fraction is obtained by multiplying both numerator and denominator by 4.

$5 \times 4 = 20$

5. Write $4\frac{3}{8}$ as an improper fraction.   [1]

$$4\frac{3}{8} = 1 + 1 + 1 + 1 + \frac{3}{8}$$

$$= \frac{8}{8} + \frac{8}{8} + \frac{8}{8} + \frac{8}{8} + \frac{3}{8}$$

$$= \frac{35}{8}$$

Answer: $\frac{35}{8}$

6.   Calculate 3.12 × 0.04   [1]

There are 4 total decimal places in both numbers.
Ignore the decimal places and complete the multiplication as if operating on two integers.

	H	T	O
	3	1	2
✖			4
1	2	4	8

Rewrite the product with **4** total decimal places.

Answer: 0.1248

7.   Approximate 4 628 to the NEAREST thousand.   [1]

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

Th	H	T	O
4	6	2	8

For the question, the hundreds figure in 4 628 is 6, which is more than 5. Therefore, we round it up to the next thousand.

Answer: 5000

8. Write the next term in the following sequence. [1]

3, 6, 12, 24, 48

Each term is doubled from the previous term.

$24 \times 2 = 48$

Answer: 48

9. Deshawn used 4 bottles of water to make a pitcher of juice. How many bottles of water would he used to make 13 similar pitchers of juice? [1]

1 pitcher of juice $=$ 4 bottles of water

13 pitchers of juice $= 13 \times 4$

$= 52$ bottles of water

Answer: 52 bottles of water

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

| $100 | $10 | $5 | $20 |

50¢   25¢   25¢   10¢   10¢   5¢

Bills ($)	**Coins (¢)**
100	50
10	25
5	25
20	10
$135	10
	5
	125 ¢

Total = $ 1 3 5 . 0 0
$ 1 . 2 5

$ 1 3 6 . 2 5

Answer = $136.25

11. From the list below, circle the most appropriate metric unit for measuring the mass of the pumpkin shown below. [1]

Millimetre   Kilogram   Millilitre   Gram

12. The perimeter of the rectangular garden shown below is 52 m. What is the width, *w*, of this garden? [1]
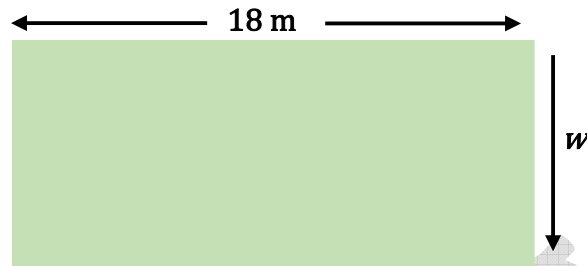
Perimeter of rectangular garden = 2l + 2**w**

$$52 = (2 \times 18) + 2w$$

$$52 = 36 + 2w$$

$$2w = 52 - 36$$

$$2w = 16$$

$$w = 16 \div 2$$

$$w = 8 \text{ m}$$

Answer: 8 m

13. The table below shows the times Orlando took to run four laps around the field.

Lap	Time Taken
1	5 minutes 30 seconds
2	6 minutes 5 seconds
3	5 minutes 10 seconds
4	6 minutes 2 seconds

In which lap did he clock the best time? [1]

The lap in which he would have clocked the best time would be the lap he ran the fastest in, that is the lap which he took the shortest amount of time to complete.

Based on the table above, the shortest time was 5 minutes and 10 seconds in the third lap.

Answer: Lap 3

14. Soraya's mom wanted to purchase a new refrigerator at a marked price of $3600. She received a discount of 10% from the salesperson. How much did Soraya's mom pay for the refrigerator? [1]

Percentage paid after discount = 100% - 10%

$$= 90\%$$

Amount paid for refrigerator $= \dfrac{90}{100} \times \dfrac{3600}{1}$

$$= \$3\ 240$$

Answer: $3 240

15.   Write down the length of the eraser shown below.   [1]
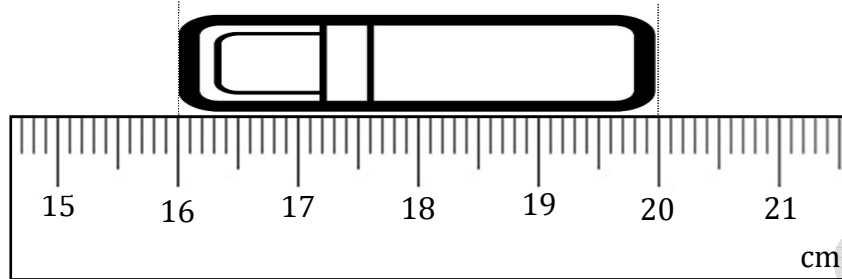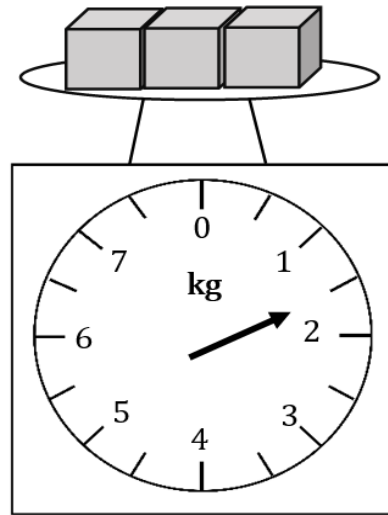

Length of eraser = 20 – 16

= 4 cm

Answer: 4 cm

16.   What is the weight of one of the blocks below?   [1]

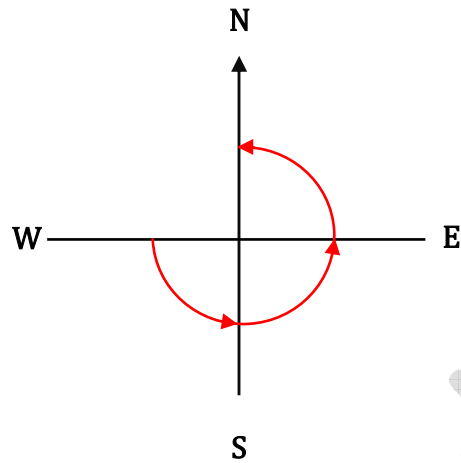Based on the scale above, the pointer is between 1 and 2 therefore,

Weight of 3 blocks = 1.5 kg

Weight of 1 block = 1.5 kg ÷ 3

= 0.5 kg

Answer: 0.5 kg

17.   Sapphire was standing facing West. She turned in an anticlockwise direction and is

now facing North.

Through how many degrees did Sapphire turn?   [1]

Sapphire made 3 quarter turns in an anticlockwise direction.

1 quarter turn = 90°

3 quarter turns = 3 × 90°

= 270°

Answer: 270°

18. The solid below is made up of cubes of the same size. What is the total volume of solid? [1]
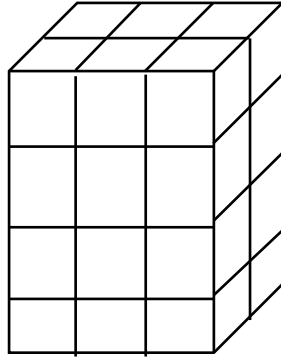
One Cube

Volume = 1 cm³

We count the number on blocks on one face which is **12** in the above diagram.

We then find the number of rows present which is **2** in the above diagram.

Total number of blocks = 12 × 2

$$= 24$$

Since the volume of 1 block was given as 1 cm³,

Volume of solid = 24 × 1

$$= 24 \text{ cm}^3$$

Answer: 24 cm³

19. The table below shows the number of movies watched in five days.

Movies Watched

Day	1	2	3	4	5
Number of Movies	4	5	4	3	4

What is the **mean** number of movies watched? [1]

Total number of movies watched $= 4 + 5 + 4 + 3 + 4$

$= 20$ movies

Mean number of movies watched $= \dfrac{\text{Total number of movies watched}}{\text{Number of days movies were watched}}$

$= \dfrac{20}{5}$

$= 4$ movies

Answer: 4 movies

20. The pictograph below shows the favourite subjects of the thirty students in the S.E.A class. The number of students who chose Mathematics is not shown.

English	🔵 🔵 🔵
Mathematics	
Social Studies	🔵 🔵 🔵
Science	🔵 🔵 🔵 🔵

🔵 = 2 students

How many students chose Mathematics as their favourite subject?   [1]

Total number of students = 30

Number of students accounted for in pictograph = 6 + 6 + 8

= 20 students

Number of students who chose Mathematics = 30 – 10

= 10 students

Answer: 10 students

21. $5\frac{3}{4} - 1\frac{1}{2} =$ [2]

$5\frac{3}{4} - 1\frac{1}{2} = 5\frac{3}{4} - 1\frac{2}{4}$

$= 4\frac{1}{4}$

Answer: $4\frac{1}{4}$

22. a) Arrange the following numbers in DESCENDING order (largest first). [1]

6 452, 6 254, 6 425, 6 245

Th	H	T	O
6	4	5	2
6	2	5	4
6	4	2	5
6	2	4	5

The first digit, the thousands digit, is the same for all numbers. So, we look at the next digit, which is the hundreds digit. 6 452 and 6 425 both had 4 hundreds and so they are higher than the other two scores. We next look at the tens column where 5 tens are present in 6 254 making it larger than 6 245

Answer: 6 452, 6 425, 6 254, 6 245

b) What is the LARGEST even number in the list above? [1]

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

Based on the list given the two even numbers are 6 452 and 6 254. The larger even number is 6 452 since it has 4 hundreds.

Answer: 6 452

23. In observance of World Earth Day, Amarie decided to plant some sunflower seeds.

If the plants increased in height by 25 centimetres every week, how many weeks would it take for the plants to grow to a height of 1.5 metres? [2]

Firstly, we convert 1.5 metres to centimetres:

$100 \text{ cm} = 1\text{m}$

Converting from m to cm we multiply by 100

The decimal place will be moved 2 spaces to the right because there are 2 zeros in "100"

$1.5 \times 100 = 150 \text{ cm}$

$$\text{Number of weeks to reach 1.5 m} = \frac{\text{Final height of 1.5 m}}{\text{Height increase per week}}$$

$$= \frac{150}{25}$$

$$= 6 \text{ weeks}$$

Answer: 6 weeks

24. Two-thirds of a number is 48. What is $\frac{3}{4}$ of the SAME number? [2]

$\frac{2}{3} = 48$

$\frac{1}{3} = 48 \div 2$

$\quad = 24$

The entire number $= 24 \times 3$

$\quad\quad\quad\quad\quad\quad = 72$

$\frac{3}{4}$ of $72 = \frac{3}{4} \times \dfrac{\overset{18}{\cancel{72}}}{1}$

Answer: 54

25. There are 600 Standard 5 students residing in Freeport. If 330 are girls, what percentage of the students is boys? [2]

Number of boys $= 600 - 330$

$\quad\quad\quad\quad\quad\quad = 270$ boys

Percentage of boys $= \dfrac{\text{Number of boys}}{\text{Total number of Standar 5 students}} \times \dfrac{100}{1}$

$= \dfrac{270}{600} \times \dfrac{100}{1}$

$= 45\%$

Answer: 45%

26. At the class party 25 students each drank one cup of fruit punch.

The capacity of one cup is 250 millilitres (ml).

How many LITRES of fruit punch did they drink ALTOGETHER? [2]

1 cup = 250 ml of fruit punch

25 cups = 250 × 25

= 6250 ml of fruit punch

We need to convert 6250 millilitres to litres.

1000 ml = 1 l

We divide 6250 by 1000; moving the decimal point 3 spaces to the left since

"1000" has 3 zeros.

6250 ÷ 1000 = 6.250 litres

= 6.25 litres of fruit punch

Answer: 6.25 litres of fruit punch

27. In Mr Springer's class, $\frac{2}{3}$ of the students arrived early, $\frac{3}{4}$ of the remainder arrived at 9 a.m and the other students were late.

a) What fraction of the class arrived at 9 a.m? [1]

$\frac{3}{4}$ of the remainder arrived at 9 a.m.

The remainder = Total – Fraction of students who arrived early

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

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

$\frac{3}{4}$ of $\frac{1}{3} = \frac{3}{4} \times \frac{1}{3}$

$$= \frac{3}{12}$$

$$= \frac{1}{4}$$

Answer: $\frac{1}{4}$

b) If there are 60 students in Mr. Springer's class, how many students were

late?   [2]

Fraction who arrived early $= \dfrac{2}{3}$

Fraction who arrived at 9 a.m. $= \dfrac{1}{4}$

Fraction who arrived early and at 9 a.m. $= \dfrac{2}{3} + \dfrac{1}{4}$

$$= \dfrac{2\,(4) + 1\,(3)}{12}$$

$$= \dfrac{8 + 3}{12}$$

$$= \dfrac{11}{12}$$

Fraction who arrived late $= 1 - \dfrac{11}{12}$

$$= \dfrac{1}{12}$$

Number of students who arrived late $= \dfrac{1}{12} \times \dfrac{60}{1}$

$$= 5 \text{ students}$$

Answer: 5 students

28. In a school's library, there are 12 long tables that can accommodate 8 students each.

a) Miss Nalini's class containing 56 students visited the library, how many tables will be occupied by the students? [1]

1 table accommodates 8 students.

Number of tables occupied by 56 students $= \dfrac{\text{Number of students}}{\text{Number of students at 1 table}}$

$$= \frac{56}{8}$$

$$= 7 \text{ tables}$$

Answer: 7 tables

b) Another class containing 52 students wants to join Miss Nalini's class in the library, how many students could NOT be accommodated in the library? [2]

Total number of students to be accommodated $= 56 + 52$

$$= 108 \text{ students}$$

Available accommodation in library $= 12 \times 8$

$$= 96 \text{ students}$$

Number of students that could not be accommodated $= 108 - 96$

$$= 12 \text{ students}$$

Answer: 12 students

29. The square of a number is 12 more than the sum of 16 and 21.

   What is the number? [2]

   The sum of 16 and $21 = 16 + 21$
   $$= 37$$

   12 more than $37 = 37 + 12$
   $$= 49$$

   The square of the number is 49.
   Therefore, the number is 7 since,
   $7 \times 7 = 49$

   Answer: 7

30. A P.E class of 56 students has to perform tumbling exercises in groups of 3 OR 4 students. The number of groups with 3 students is the SAME as the number of groups with 4 students.

a) How many groups of 3 students and 4 students can be formed? [2]

Groups of 3 or groups of 4 students are made.

The number of groups are the same.

One group of 3 and one group of 4 has a total of $3 + 4 = 7$ students

Therefore, the number of groups of 7 students $= 56 \div 7$

$= 8$ groups

But each group of 7 students is made up of two groups (3 or 4 students respectively)

There will be 8 groups of three students and 8 groups of four students.

Total number of groups $= 8 + 8$

$= 16$ groups

Answer: 16 groups

b) Each group must use 2 exercise mats to perform its exercise.

What is the TOTAL number of exercise mats needed? [1]

Each group uses 2 exercise mats.

There are 16 groups.
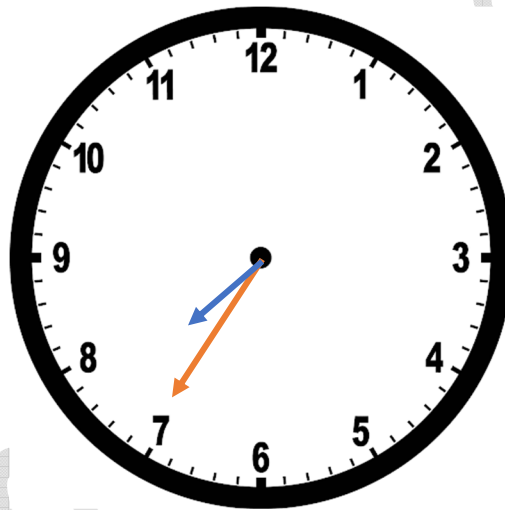
The total number of exercise mats required $= 16 \times 2$

$= 32$ exercise mats

Answer: 32 exercise mats

31. Keron usually leaves home at thirty-five minutes past seven in order to reach to work on time.

a) Draw in the hands on the clock below to show the time Keron leaves home. [1]

b) Yesterday Keron ran late because he spent 20 additional minutes preparing his lunch.

Write the time Keron left home on the digital notation. [2]

Time Keron left home = Thirty-five minutes past seven + 20 minutes

= 7:35 + 20 minutes

= 7:55

Answer: 7:55

32. The pineapple shown in the diagram below has a mass of 2 485 g.
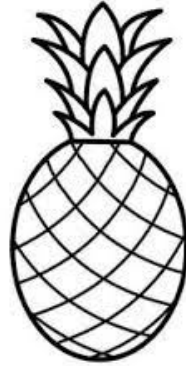
Pineapple

What is the mass of the pineapple to the nearest kilogram? [2]

Mass of pineapple = 2 485 g

Converting to kilogram, we divide by 1000 and move the decimal point 3 spaces to the left.

2485 g = 2485 ÷ 1000

= 2.485 kg

When rounding to the nearest kilogram, the most important figure that we must look at is number directly after the decimal point. Once that figure is 5 or more, then we round it up to the next kilogram. If it is 4 or less, then we round it down to the previous kilogram.

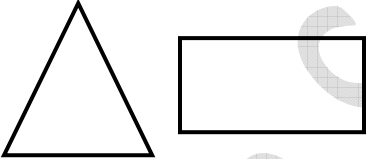| 2	.	4	8	5

For the question, the number directly after the decimal point in 2.485 kg is 4, which is less than 5. Therefore, we round it down to the previous kilogram.

Answer: 2 kg

33.   The diagram below shows a triangular prism.
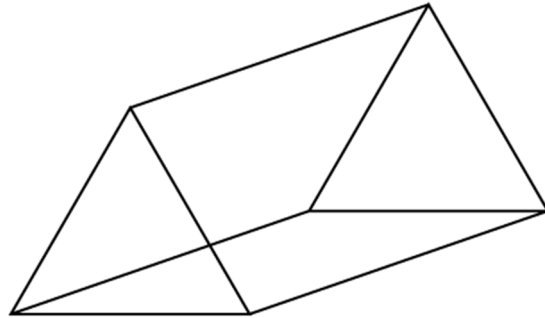
Complete the following table based on the diagram above.   [3]

Drawing of Solid's Faces	Number of Faces	Number of Edges	Number of Vertices
	5	9	6

34. Shanna and her family went on a backpacking trip. They started hiking at 4:15 p.m. It took 2 hours and 25 minutes to reach their campsite. After they arrived, it took 40 minutes to set up the campsite.

   What time was it when Shanna and her family finished setting up their campsite? [2]

Time taken to reach the campsite = 2 hr 25 mins

Time taken to set up campsite   = 0 hr 40 mins

Total time taken = 3 hrs 05 mins

We need to add 3 hours and 5 minutes to 4:15 p.m. to find the time Shanna and her family finished setting up the campsite.

Hours	Minutes
4	15
3	5
7	20

Shanna and her family finished setting up the campsite at 7:20 p.m.

Answer: 7:20 p.m.

35. Remy has a mass of 34.2 kg. Stefan's mass is $9\frac{3}{5}$ kg MORE than Remy's.

Brandon's mass is 4.3 kg LESS than Stefan's.

a) What is Stefan's mass? [1]

Stefan's mass is $9\frac{3}{5}$ kg MORE than Remy's mass.

Stefan's mass $= 34.2 + 9\frac{3}{5}$

$= 34.2 + 9.6$

$= 43.8$ kg

Answer: 43.8 kg

b) What is the TOTAL mass of the three children? [2]

Remy's mass is 34.2 kg

Stefan's mass is 43.8 kg.

Brandon's mass is 4.3 kg LESS than Stefan's

Brandon's mass $= 43.8 - 4.3$

$= 39.5$ kg

TOTAL mass of the 3 children = Remy's mass + Stefan's mass + Brandon's mass

$= 34.2 + 43.8 + 39.5$

$= 117.5$ kg

Answer: 117.5 kilograms

36. Allan had $1600 and decided to share it among his 3 grandchildren, according to their age. The middle child got twice more than the youngest, and the oldest got five times more than the youngest.
How much money did the oldest grandchild get? [3]

Total = $1600

8 parts = $1600

1 part = $\frac{\$1600}{8}$

= $200
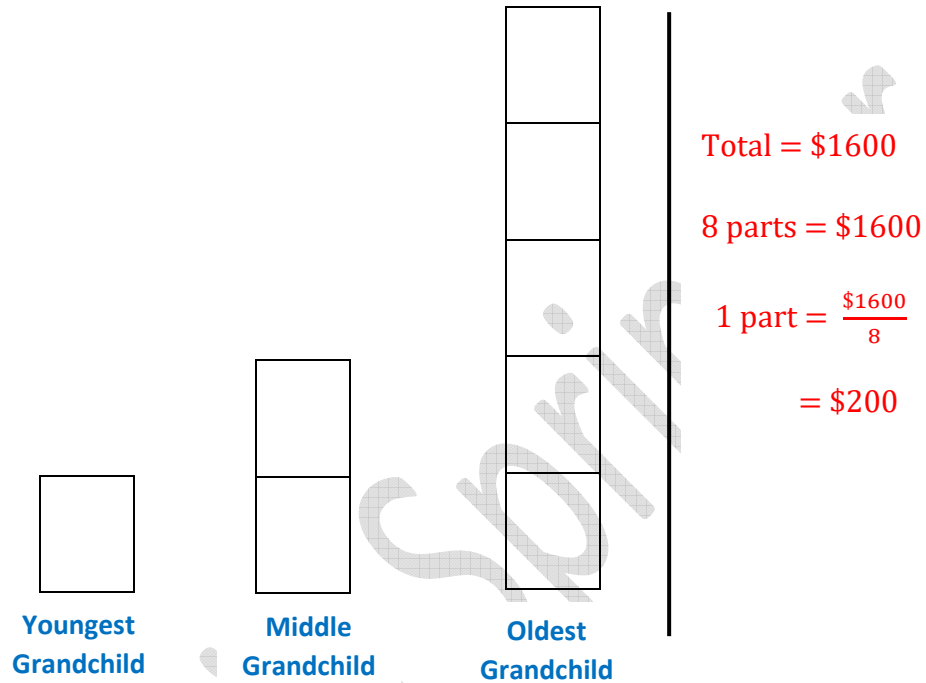
Youngest Grandchild **Middle Grandchild** **Oldest Grandchild**

Amount of money oldest grandchild got = 5 × $200

= $1000

Answer: $1000

37.   Janaye and Victoria decided to play a game of turns where they both started the game facing South.

Janaye made $\frac{1}{4}$ turns in an anticlockwise direction.

Victoria made $\frac{1}{2}$ turns in a clockwise direction

Complete the table below to show the direction each girl faced after each

turn.   [4]

TURN	JANAYE	VICTORIA
START	South	South
1	East	North
2	North	South
3	West	North
4	South	South

38. After six consecutive cricket games the mean number of runs scored by Antonio was 24. After the 7th game, his mean number of runs scored increased to 28.

a) How many runs did Antonio score in the 7th game? [2]

Antonio's mean score after 6 games is 24.

Total number of runs scored in 6 games = 24 × 6

= 144 runs

Antonio's mean score after 7 games is 28.

Total number of runs scored in 6 games = 28 × 7

= 196 runs

Number of runs scored in 7th game = 196 – 144

= 52 runs

Answer: 52 runs

b) If Antonio's number of runs scored in the 8th game is 16 more than in the 7th game, what will be his new mean score? [2]

Number of runs in 8th game $= 52 + 16$
$$= 68 \text{ runs}$$

Total number of runs scored in 8 games $= 196 + 68$
$$= 264 \text{ runs}$$

New mean score $= \dfrac{\text{Total number of runs scored in 8 games}}{8}$

$$= \frac{264}{8}$$

$$= 33 \text{ runs}$$

Answer: 33

39. A washing machine costs $4 500. During a sale, it was marked down to $3 600.
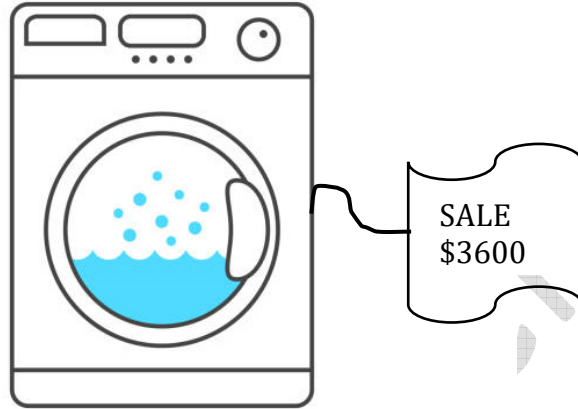
a) What was the amount of the discount? [1]

Amount of discount = $4500 – $3600
= $900

Answer: $900

b) What was the percentage discount on the washing machine? [1]

$$\text{Percentage discount} = \frac{\text{Discount}}{\text{Orignial Selling Price}} \times 100$$

$$= \frac{900}{4500} \times \frac{100}{1}$$

$$= 20\%$$

Answer: 20%

c) The store adds a delivery fee of 3% of the sale price. Calculate the amount

that a customer would pay altogether for the washing machine.   [2]

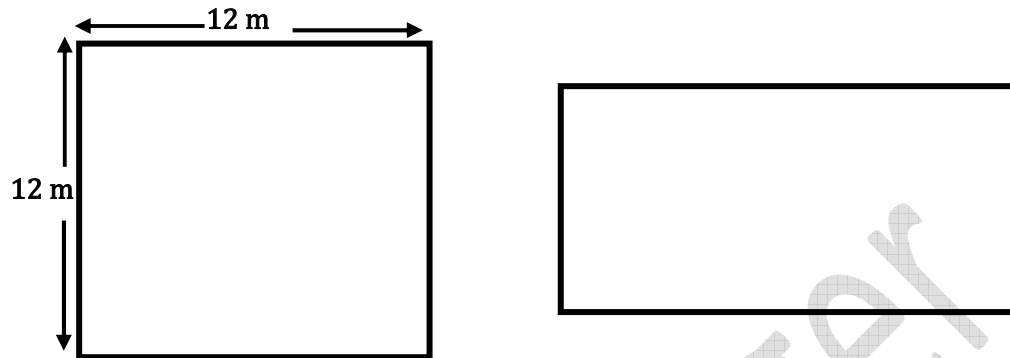Cost of washing machine after discount = $3600

Delivery fee is 3% of $3600.

$$\text{Delivery fee} = \frac{3}{100} \times \frac{3600}{1}$$

$$= \$108$$

Total amount customer paid for the washing machine = $3600 + $108

$$= \$3708$$

Answer: $3708

40. The perimeters of the rectangle and square below are the same. (**not drawn to scale**)
The length of the rectangle is twice its width.

What is the difference between the areas of the square and the rectangle? [4]

Perimeter of Square = Perimeter of Rectangle

Perimeter of Square = S × 4

$\qquad$ = 12 × 4

$\qquad$ = 48 m

Perimeter of Rectangle = 48 m

Area of Square = S × S

$\qquad$ = 12 × 12

$\qquad$ = 144 m²

Now we need to find the length and width of the rectangle in order to calculate its area.

We were told that the length of the rectangle = 2 × width of rectangle

So, l = 2w

Perimeter of Rectangle = 2 × (l+w)

$$48 \text{ m} = 2 \times (2w+w)$$

$$48 \text{ m} = 2 \times 3w$$

$$48 \text{ m} = 6 \text{ w}$$

$$w = \frac{48}{6}$$

$$w = 8 \text{ m}$$

And l = 2 × 8 = 16 m

Area of Rectangle = Length × Width

$$= 16 \times 8$$

$$= 128 \text{ m}^2$$

Difference between the areas of the square and rectangle = 144 m² – 128 m²

$$= 16 \text{ m}^2$$

Answer: 16 m²