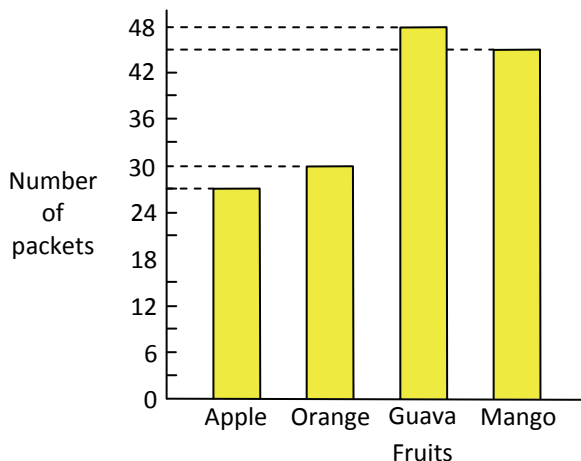


Long Questions

1. [Ratio & Percentage]

At a fruit juice dispensing store, the number of packets of juice sold in a day is shown in a bar graph.



(a) The number of packets of apple juice sold is

(b) For the day, the shop sold 150 packets of juice altogether.

The percentage of the number of packets of orange juice to the total packets sold is

§

2. [Ratio & Percentage]

At an electronic superstore in City S, a customer wants to buy a television. As part of indirect tax, every customer has to pay a 5% GST (Good & Services Tax) on their purchases. The price of a television set without GST is \$800 as shown in the figure.



The amount of GST a customer has to pay for buying the television set is

§

3. [Ratio & Percentage]

Three stamp hobbyists, Pan, Jason and Ryn collect some stamps. Pan and Ryn have a total of 310 stamps. Jason and Ryn together have 3 times as many stamps as Pan. The ratio of the number of stamps Jason has to the number of stamps Ryn has is 3 : 7.

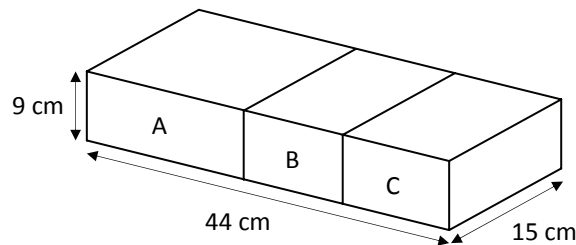
The number of stamps Pan has is

_____.

§

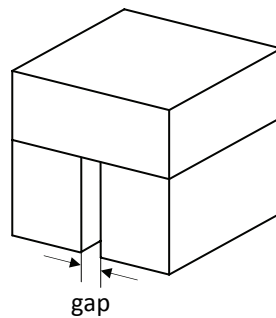
4. [Ratio & Percentage]

In the olden days, a carpenter can use large identical wooden blocks to make low stools. Each block is 44 cm long, 15 cm wide and 9 cm thick. He then cuts the length of the block into three parts A, B and C in the ratio 5 : 3 : 3.



He then nails the parts B and C to part A to make a stool such that there is a gap between parts B and C.

The stool is as shown below.



(a) The length of the gap is

_____.

(b) There are a number of ways the carpenter can stack up the completed stools one on top of another. In the store room, there is a limit to the maximum height. The carpenter wants to know the lowest **possible** height for a stack of 10 stools.



The lowest **possible** height of the stack of 10 stools is

_____.

§

5. [Ratio & Percentage]

From a florist, Mr Onyx bought some stalks of orchids and roses and placed them mixed in 2 boxes. In box A, the number of orchids and roses are in the ratio 3 : 4. In box B, the number of orchids is twice the number of roses. Mr Onyx then decides to transfer half of the roses originally from box A to box B. The number of flowers in box A is found to be 105 and the ratio of the number of orchids to the number of roses in box B becomes 5 : 6.

(a) The number of roses that is transferred from box A to box B is

_____.

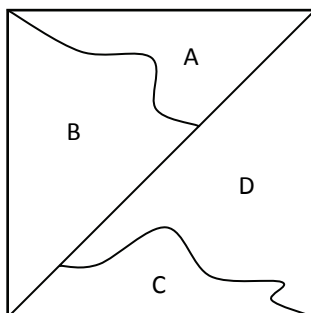
(b) The number of flowers in box B after the transfer is

_____.

§

6. [Ratio & Percentage]

In a toy, 4 different coloured parts, A, B, C and D, are designed to form a square as shown below. The ratio of area A to area B is 2 : 3. The ratio of area B to area C is 2 : 1. The area D is 35 cm^2 .



(a) The ratio of area A to area B to area C is

_____.

(b) The length of one side of the square is

_____.

§

7. [Ratio & Percentage]

[For this question, give your answer in its simplest form.]

In a mathematical quiz, the students are shown two boxes. Box X and box Y contain only blue and red pens. It is given that:

- In box X, the ratio of the number of blue pens to the number of red pens is 5 : 4.
- In box Y, the ratio of the number of blue pens to the number of red pens is 5 : 1.

Finally, there are 3 times as many pens in box X as in box Y.

(a) The ratio of the number of blue pens in box X to the number of red pens in box Y is

_____.

(b) In the second part of the mathematical quiz, 66 more red pens are added into box Y, the ratio of the number of blue pens to the number of red pens in box Y becomes 3 : 5.

The number of red pens in box Y before the addition is

_____.

S

8. [Ratio & Percentage]

Mary likes to keep swordtails and guppies in an aquarium. In the aquarium, she counted 25% of the fishes are swordtails. She then buys an equal number of swordtails and puts them into the aquarium.

(a) After the addition, the overall percentage of **guppies** in the aquarium

_____.

(b) The percentage of guppies in the aquarium, after the addition is

_____.

S



9. [Ratio & Percentage]

A junior school constructed a new swimming pool. The number of students using for the first 5 months of the year is tabulated below.

Month	Boys	Girls
January	45	45
February	18	47
March	59	31
April	53	62
May	50	20

(a) The months where there are more girls than boys at the swimming pool are

_____.

(b) From the month of May to June, there are a 20% increase in the number of boys and a 20% decrease in the number of girls at the swimming pool.

The difference between the number of boys and the number of girls at the swimming pool in the month of June is

_____.

§

10. [Ratio & Percentage]

In a music store, Samantha works as a store assistant. The store owner states that for every piano that Samantha sells, she will earn a sum of commission as stated below:

10% of the first \$500 of the selling price
and
8% of the remaining selling price

On a particular day, Samantha sold a piano and earned \$650 in commission.

The selling price of the piano is

_____.

§

11. [Ratio & Percentage]

At a furniture store, the price of a sofa is 20% that of a bedroom set. A customer, Edison intends to buy one sofa and one bedroom set. The store assistant decides to give him a discount of 30%. Edison paid a total of \$2730 for them.

(a) The amount of money that Edison saves on the two items because of the discount is

_____.

(b) The price of the sofa before the discount is

_____.

§

12. [Ratio & Percentage]

In Month 1, a childcare centre is given a sum of \$2000 to spend. It spends 10% of the money on books, 70% on food and the rest on cleaning services.

In Month 2, the money given is reduced. The childcare centre spends the same amount of money on books, but reduces its spending on food by \$240. It finds that the money left is only 20%, it decides to spend it on cleaning services.

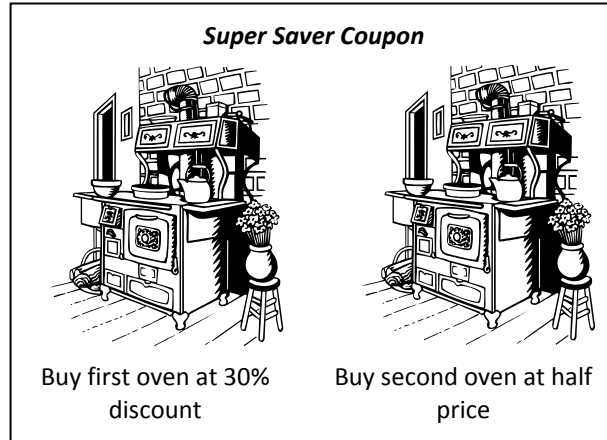
The reduced percentage of the money given to the childcare centre is

_____.

§



13. [Ratio & Percentage]



A superstore is doing a promotion on their new range of ovens and giving away free *Super Save coupons* to loyal customers. Mary paid \$480 for the two ovens by using the *Super Saver Coupon* shown above.

If she is not a loyal customer and did not use the *Super Saver Coupon*, the **additional** amount of money Mary has to pay, if she wants to buy the two ovens, is

_____.

§

14. [Ratio & Percentage]

At the beginning, Sandy's savings to Ray's savings is at a ratio of 5 : 4. At a charity, each of them donated \$60, the ratio of Sandy's savings to Ray's savings then is reduced to 13 : 10.

Sandy's savings **at first** is

_____.

§

15. [Ratio & Percentage] [2006–2009]

At a bookstore, the storekeeper, Mr Williams has a number of books for sale. He sold a total of 342 books on Saturday and Sunday. On Monday, he sold $\frac{1}{4}$ of the remainder. He is left with 18% of the books he had at first.

The number of books Mr Williams had **at first** is

_____.

§

16. [Ratio & Percentage]

Keith and James were sharing their purchases of sweets and chocolates. Before the purchases, they both had no sweets or chocolates. Keith bought some sweets and gave half of them to James. James bought some chocolates and gave half of them to Keith.

Keith ate 18 chocolates while James ate 12 sweets. At the end, the number of sweets and chocolates Keith had were in the ratio 1 : 4, and the number of sweets and chocolates James had were in the ratio 1 : 7.

The number of sweets Keith bought is

_____.

§



Answer keys:

MCQs

1. 7 500
2. 15
3. 7 : 60
4. \$25
5. \$60
6. 30%
7. \$60
8. 7 : 8

Short Questions

1. \$2.55
2. (a) 19%
(b) Type C
3. 49 eggs
4. 60%
5. (a) $\frac{3}{7}$
(b) 42
6. 10
7. 9
8. 40%
9. (a) \$320
(b) 12½%
10. $3\frac{1}{5} \ell$
11. 18
12. \$1 500
13. (a) $\frac{7}{24}$
(b) 96 cm²
14. \$0.80
15. 11
16. \$4.50
17. 50
18. 15
19. 8
20. $\frac{4}{25}$
21. 70%
22. 35%
23. 240%
24. \$115

Long Questions

1. (a) 27
(b) 20%
2. \$40
3. 100
4. (a) 2 cm
(b) 150 cm
5. (a) 42
(b) 132 flowers
6. (a) 4 : 6 : 3
(b) 10 cm
7. (a) 10 : 1
(b) 45 pens
8. (a) decreases
(b) 60%
9. (a) February and April
(b) 44
10. \$8 000
11. (a) \$1 170
(b) \$650
12. 15%
13. \$320
14. \$450
15. 450
16. 68

Notes: