Hoërskool Roodepoort

Dear Grade 8's

Hope you are healthy, positive and strong!

You should already be finished with the previous work placed on the website.

We set up a work schedule for each week in June to keep your MATH up to date during lockdown.

Please complete each worksheet for each day in your exercise book and mark your work using the memo given. We will check it in class once classes resume.

Remember to do all calculations on how you got your answers.

Read up about the work for the day in your textbook.

It will only take a few minutes a day.

We know we can count on you Grade 8's.

See you soon
From your Grade 8 Math Teachers

be strong never give up stay positive

Revision program from TERM 1

Date	Topics and Worksheets	Parental guidance
Monday– 1 June	Simplify Ratios Worksheet	Please check if work is done. This includes: 1. Information for topic of the day read from the textbook. 2. Worksheets given done. 3. Use Memorandum to check correctness of answers.
Tuesday - 2 June	Ratio and Rates Word Problems	
Wednesday - 3 June	Speed Distance and Time Worksheet	
Thursday - 4 June	Percentages Worksheet	
Friday - 5 June	Finance 1– Profit and loss Worksheet	
Bonus day!!	Fun for the weekend!	

Simplifying Ratios

A ratio is a comparison between two numbers or two quantities with the same unit.
A ratio 3:5 means that for every 3 of the one, there are 5 of the other.

For example: Write the ratio of 24:36 in simplest form.

Solution:
The Highest Common Factor (HCF) is 12.
24:36

$= \frac{24}{12} : \frac{36}{12}$

= 2 : 3

We use ratios to show how many times more, or less, one quantity is than another.

Now try it yourself. Answer and show all the calculations in your exercise book.

1 Give each of these ratios in simplest form

a) 60 : 80

b) 4 : 6

c) 15 : 5

d) 16 : 20

c) 100 : 20

f) 5 : 40

g) 75 : 25

h) 12 : 2

i) 7 : 21

j) 12 : 8

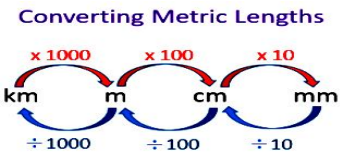
k) 150 : 200

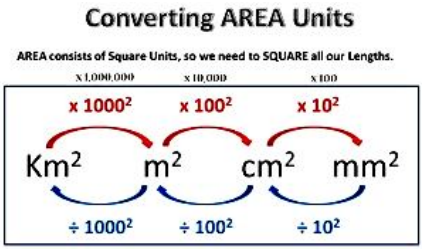
l) 27 : 30

2 In an orchard of 100 trees there are only cherry trees and plum trees

a If there are 30 plum trees what is the ratio of cherry trees and plum trees

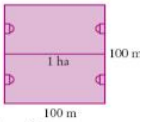
b If there are 75 cherry trees what is the ratio of plum trees to the number of trees in the orchard





Measuring Large Areas

- 1 hectare is about the size of 2 football fields
- 1 hectare = (100 × 100) m2
- 1 ha = 10 000 m2



- 1 square kilometre is a square 1km by 1km

3 Express each of the following ratios in its simplest form. First express both quantities in the same unit

a) 50 cm : 1 metre

b) 800 cm^2 : 1 square metre

c) 200 kg : 1 tonne

d) 7500 g : 2 kilograms

c) 3500 m : 5 kilometres

f) 250 mL: 2 litres

g) 10 h : 1 day

h) 3 mm : 3 metres

i) 8000 m^2 : 1 hectare

j) 30 years : 1 century

Simplifying Ratios Memo

ANSWERS

Question 1

a) 3 : 4
b) 2 : 3
c) 3 : 1
d) 4 : 5
e) 5 : 1
f) 1 : 8
g) 3 : 1
h) 6 : 1
i) 1 : 3
j) 3 : 2
k) 3 : 4
l) 9 : 10

Question 2

a 3 : 7

b 3 : 4

Question 3

a) 1 : 2
b) 2 : 25
c) 1 : 5
d) 15 : 4
e) 7 : 10
f) 1 : 8
g) 5 : 12
h) 1 : 1000
i) 4 : 5
j) 3 : 10

Your Score:

24

What do you call a group of dudes who love math?

Alge-*bros*!

Ratio and Rates Worksheet

What is a ratio?

A ratio is a comparison of two or more numbers that are usually of the same type or measurement.
If the numbers have different units, it is important to convert the units to be the same before doing any calculations.
We write the numbers in a ratio with a colon (:) between them.

For example: If there are 8 learners who travel by bus and 12 learners who travel by taxi, then we say we have a ratio of 8 learners travelling by bus to 12 learners travelling by taxi.
We can write this as 8 : 12.
We can also simplify this ratio to 2 : 3, by dividing both parts by 4.
It is important in which order you state the ratio. A ratio of 1: 7 is not the same as a ratio of 7 : 1.

What is a rate?
A rate, like a ratio, is also a comparison between two numbers or measurements, but the two numbers in a rate have different units.

Some examples of rate include cost rates, (for example potatoes cost R16,95 per kg or 16,95 R/kg) and speed (for example, a car travels at 60 km/h).

Now try it yourself. Answer and show all the calculations in your exercise book.

Section A: Word Problems

1) Bob has 12 red cards and 20 green cards. What is the ratio of Bob's red cards to his green cards? _____

2) In a party, 10 soft drinks are required for every 12 guests. If there are 252 guests, how many soft drinks is required? _____

3) In Jack's class, 18 of the students are tall and 10 are short. In Michael's class 54 students are tall and 30 students are short. Which class has a higher ratio of tall to short students? _____

4) The price of 3 apples at the Quick Market is R1.44. The price of 5 of the same apples at Walmart is R2.50. Which place is the better buy? _____

5) The bakers at a Bakery can make 160 bagels in 4 hours. How many bagels can they bake in 16 hours? What is that rate per hour? _____

6) You can buy 5 cans of green beans at a supermarket for R 3.40. How much does it cost to buy 35 cans of green beans? _____

7) The ratio of boys to girls in a class is 2:3. If there are 18 boys in the class, how many girls are in that class? _____

8) The ratio of red marbles to blue marbles in a bag is 3:4. If there are 42 marbles in the bag, how many of the marbles are red? _____

Ratio and Rates Worksheet

Section B: Multiple Choice

1) The ratio between the number of Anita's cousins and the number of Juan's cousins is 5:8.
If Anita has 15 cousins, how many does Juan have?

A 5
B 8
C 24
D 40

2) Allison sells apples at the market.
On a given day, the ratio of red delicious to Macintoshes to granny smiths sold is 4:3:2.
If her truck can carry 180 bushels of apples, how many bushels of granny smiths should she include?

A 90
B 80
C 60
D 40

3) The cost of a luxury car compared to a mid-size family car is in the ratio 3:2. The cost of the mid-size family car to an economy car is 2:1.
What is the ratio between the cost of a luxury car and the cost of an economy car?

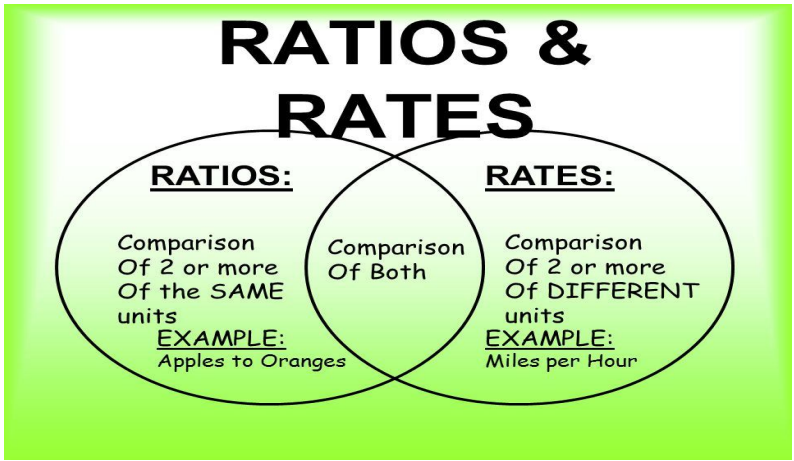
A 2:1
B 3:1
C 5:1
D 6:1

4) If the Banded Peak school bus travels 2531 km in 26 hours, what unit rate correctly identifies their speed?

A 97.3km/hour
B 2531km/26 hours
C 97 km/ hour
D 98 km/hour

5) Sally can pedal her bicycle 20 km in 2 h, while Antonio can pedal his bicycle 18 km in an hour and a half.
If each enters a 24 km race, and pedals at these same rates, which will win the race, and by how much time?

A Sally and Antonio will tie.
B Sally will win by 0.4 h.
C Antonio will win by 0.4 h.
D Antonio will win by 0.5 h.



Ratio and Rates Memo

Answers:
Section A:

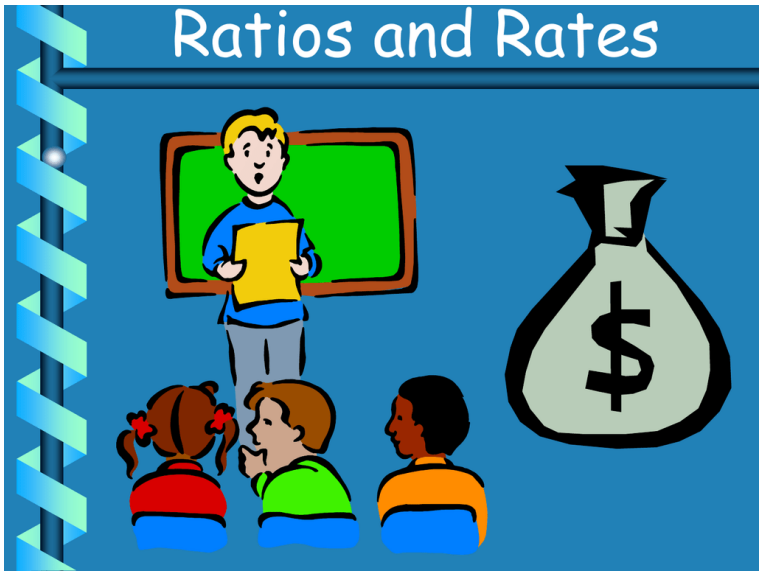
1) 3:5
2) 210
3) The ratio for both classes is 9 to 5.
4) Quick Market is a better buy.
5) 640, the rate is 40 per hour.
6) R 23.80
7) 27
8) 18

Answers:
Section B:

1) C
2) D
3) B
4) A
5) C

Your Score:

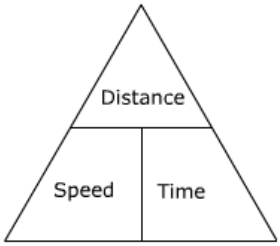
/13



Speed, Distance and Time Worksheet

Distance Speed Time Formula

Speed is a measure of how quickly an object moves from one place to another. It is equal to the distance traveled divided by the time. It is possible to find any of these three values using the other two. This picture is helpful:



The positions of the words in the triangle show where they need to go in the equations. To find the speed, distance is over time in the triangle, so speed is distance divided by time. To find distance, speed is beside time, so distance is speed multiplied by time.

$$speed = \frac{distance}{time}, time = \frac{distance}{speed}, distance = speed \times time$$

Example:

A car is travelling at a constant speed of 80kmph. How many kilometres will the car cover if it keeps this speed for the next 3 hours and 15 minutes?

This time you need to work out the distance so D = S × T

Be careful with the time as it needs to rewritten in hours only. 15 minutes is ¼ hour (0.25) so 3 hours and 15 minutes is 3.25 hours.

Now substitute S = 80 and T = 3.25 into the formula for distance:

D = S ×T

= 80 × 3.25

= 260km

So the car travels 260km in 3 hours and 15 minutes.

Now try it yourself. Answer and show all the calculations in your exercise book.

1. A car covers a distance of 150 miles in 2 ½ hours. Calculate the average speed of the car in miles per hour.

2. A dog runs from one side of a park to the other. The park is 80 meters across. The dog takes 16 seconds to cross the park. What is the speed of the dog?

3. A golf cart is driven at its top speed of 27 km/h for 10 minutes. In meters, how far did the golf cart travel?

4. Julia travels in an airplane a distance of 3540km. For one-third of the distance, the airplane flies at a speed of 720km/h, and for the rest of the distance, it flies at a speed of 800km/h. How long does the trip take?

5. A train travels with a constant speed of 112km/h. How long will it take to travel a distance of 336 km?

6. Cindy rides her bike with a constant speed of 16km/h. How far can she travel in 60 minutes?

Speed, Distance and Time Worksheet Memo

Answers:

1. Since you want the speed cover up S in your triangle and you get S = D/T

Next substitute D = 150 and T = 2.5 into the formula for speed:

S = D/T

S = 150/2.5 = 60mph

2. The distance the dog travels and the time it takes are given. The dog's speed can be found with the formula:

$$s = \frac{d}{t}$$

$$s = \frac{80.0m}{16.0s}$$

s = 5.0 m/s

The speed of the dog is 5.0 meters per second.

3. The first step to solve this problem is to change the units of the speed and time so that the answer found will be in meters, since this is what the question asks for. The speed is:

s = 27 km/h

$$s = 27.0\,\frac{km}{h} \times \frac{1000m}{1km} \times \frac{1h}{60min} \times \frac{1min}{60s}$$

s = 7.5 m/s

Converting the units, the speed is 7.5 m/s. The time the cart travelled for was:

t = 10 min

$$t = 10.0\,min \times \frac{60s}{1min}$$

t = 600s

The speed of the cart and the time of travel are given, so the distance travelled can be found using the formula:

d = st

d = (7.50 m/s)(600 s)

d = 4500 m

The golf cart travelled 4500 m, which is equal to 4.5 km.

Speed, Distance and Time Worksheet Memo

Answers:

4. The trip takes 4 hours and 35 minutes or 4,6 hours.

Step 1: Work out the two distances.

First part: $\frac{1}{3}$ x 3540 km = 1180 km

Time = $\frac{1180}{720}$ = 1, 638 hours

Second part: $\frac{2}{3}$ x 3540 km = 2360 km

Time = $\frac{2360}{800}$ = 2,95 hours

2,95 +1,638 = 4,58 hours or rounded off to 4,6 hours

To change it into exact minutes take: 0,58 x 60 = 34,8 minutes rounded off to 35 minutes.

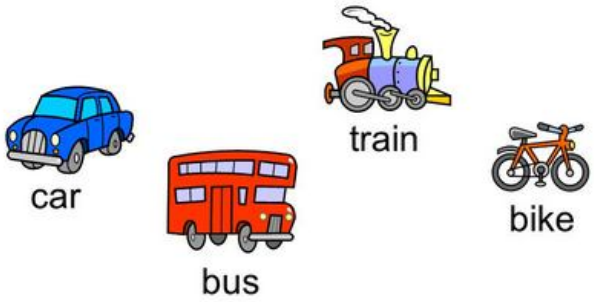
Both 4,6 hours or 4 hours and 35 minutes are correct.

5. It takes 3 hours to travel a distance of 336 kilometers.

Time = $\frac{d}{s}$

= 336

6. She can travel 16 kilometers in 60 minutes. Because 60 minutes equals one hour.



Your Score:

/ **6**

Percentages Worksheet

Percent (or **per cent**) means *one hundredth*.
The symbol for percent is **%**.

Therefore, 1% means 1/100 or one hundredth,
and 7% means 7/100 or seven hundredths.

The words "per cent" actually mean "per hundred" in Latin.

$\frac{5}{100}$ five per cent $= 5\%$

Since percentages are just hundredth parts, we can very easily write them as fractions and as decimals.

$63\% = \frac{63}{100} = 0.63$ $\qquad$ $9\% = \frac{9}{100} = 0.09$

Now try it yourself. Answer and show all the calculations in your exercise book.

Find the answers to these percentage of number word problems.
Can you spot the impossible/trick problem?

1) A shop sells 200 chocolate, vanilla and strawberry ice creams. 45% of the ice creams sold are vanilla, and 30% are strawberry. How many chocolate ice creams are sold?

2) An animal park has lions, tigers and zebras. 20% of the animals are lions and half the animals are zebras. If there are 120 animals at the park, how many tigers are there?

3) LA Galaxy have won 36% of their soccer matches. If they have played 50 matches, how many have they won?

4) A car can travel 400 miles on a full tank of petrol. A more efficient car can travel 30% further. How many miles can it travel on a tank?

5) In a fruit survey, 60 children choose their favourite fruit out of apples, bananas and watermelon. 30% chose apples, 25% chose bananas. How many children chose watermelon?

6) In a traffic survey of 200 vehicles: bikes, buses and cars were recorded. ¾ of the vehicles were cars and 17% were buses. How many bikes were there?

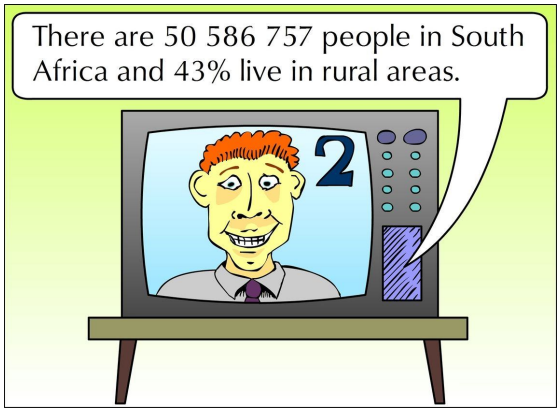
7) In Salamanderville, there is a 24% chance it will rain on any given day. How many days of rain would you expect in 50 days?

Answer:

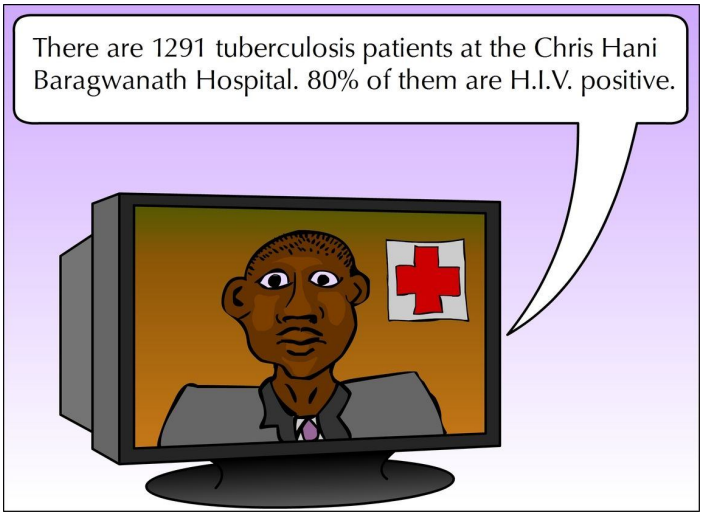
8) Sally either walks, cycles or drives to work. She walks about 15% of the time. In 100 days, how many times would she cycle?

Did you manage to find the impossible problem?

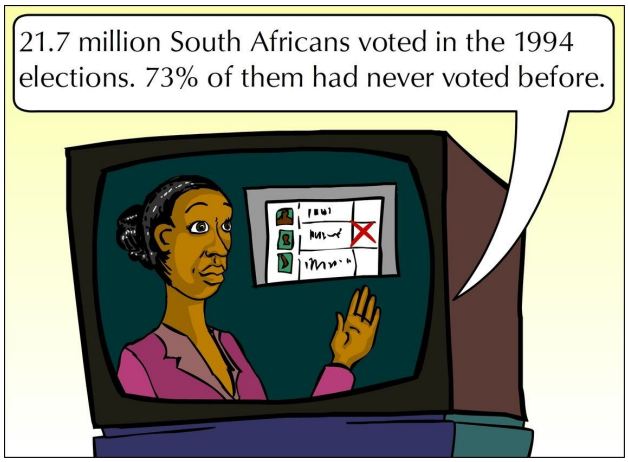
Percentages Worksheet continued..



9. How many people live in rural areas?



10. How many T.B. patients are H.I.V. positive?



11. How many people had never voted before the 1994 election?

12. Top Teenage T-shirts printed 120 T-shirts. They sold 72 T-shirts immediately.
What percentage of the T-shirts were sold?

Percentages Worksheet Memo

1. 50 Chocolate ice creams
2. 36 Tigers
3. 18 Matches
4. 520 Miles
5. 27 Children
6. There were 16 bikes
7. 38 days would be dry
8. Impossible question - we do not know how much of the time she drives.
9. 43%=43÷100

   43÷100×50 586 757=21 752 305 people live in rural areas.
10. 80%=80÷100

    80÷100×1 291=1 032 patients
11. 73%=73÷100

    73÷100×21 700 000=15 841 000 people had never voted before
12. 72 of the 120 T-shirts were sold

    72÷120×100=60%

    So 60% of the T-shirts were sold.

Your Score:

/12

Learn the Finance Terminology

1. Budgets
   A budget is a plan of how money will be managed and spent. A budget is important – if a good budget is made and followed then a person is not likely to go into debt.
   "A budget is telling your money where to go instead of wondering where it went" (Dave Ramsey)

2. Accounts
   Some basic services like electricity, water and telephone are paid for in arrears (after the service has been used) and an account is sent to the customer, so he/she knows what to pay. Other services (like rent) are paid in advance (before the service has been used).
   It is also possible to have an account with a shop which allows a person to buy on credit and pay later. In this case interest (extra money) is charged. In other words, the item bought will cost more than it would have if cash had been paid.

Profit
Sale price — cost price.

3. Profit and Loss
   If a business makes more money than has been spent – there will be a profit
   If a business makes less money than has been spent – there will be a loss

4. VAT (Value added tax)
   This is a tax paid on almost every item you buy. The price tag always includes the tax, so you may not realise you are paying it. VAT in south Africa is 15%.

5. Loans
   When a person does not have the full amount to buy an item, it is possible to take a loan for the money needed. The loan would then be paid back (usually on a monthly basis) and interest would be added. All banks and some shops and private companies all offer loans.

6. Discount
   An amount (usually a percentage) offered off an original price.

7. Percentage increase
   To find by what percentage an amount has been increased we need to find the difference in the two amounts (new and original) then divide it by the original amount. This figure multiplied by 100 will give the percentage.

Cost price
The amount that the dealer / trader / merchant pays for an article.

Marked price
This is the price of the article.

Selling price
This is the price after discount.

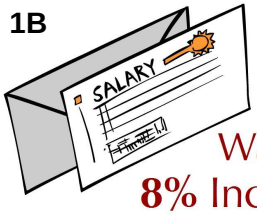
Finance Worksheet– Profit and Loss

Now try it yourself. Answer and show all the calculations in your exercise book.

1. Look at the pictures below.
What is the value of each of the following items, in rands?

1A

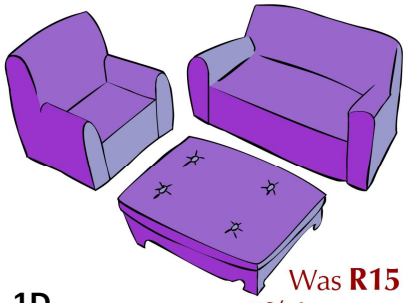
1B



Was **R9 875**
8% Increase

1C

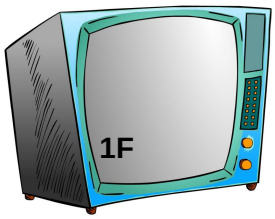
1D



Was **R15 995**
5% Increase

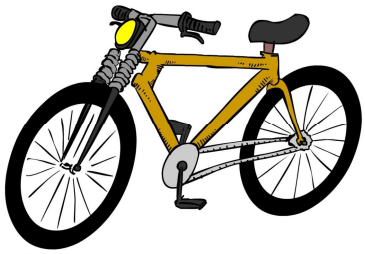
2. Look at the pictures below.
Calculate the percentage discount on each of these items:

2A **Was R1 523**



Now R1 360

2B **Was R586**



Now R527,40

3. Answer the multiple choice: Do and show all the calculations of how you got your answer.

3A A shopkeeper gives 10% discount on all items. If discounted price of a radio is R1620, find the original price of the radio.

a. R1980 **b.** R2160

c. R1800 **d.** R1440

3B A shopkeeper buys 5 dining tables for R55000. If he sells them for a profit of 20%, find the selling price of one dining table.

a. R11880 **b.** R15840

c. R10560 **d.** R13200

3C Matthew bought a video game for $R1458$ including tax at 8%. Find the original price of the video game.

a. R1670 **b.** R2187

c. R2107 **d.** R1473

Finance Worksheet– Profit and Loss continued

3D Yaseen bought a house for R2950000. He spent R125000 for renovation of the house when he bought it. Each year he spends R11000 on maintenance of the house. After 11 years, he sells the house for R3736000 . How much profit did he make?

a. R551000 **b.** R562000

c. R529000 **d.** R540000

3E Michael buys 140 guitars from a wholesale market paying R224 for each item, and then he makes a profit by selling each one at $\frac{5}{4}$ of the price he bought them at. How much money did he have after selling them all?

a. R37285 **b.** R39040

c. R39200 **d.** R39627

Finance Worksheet– Profit and Loss Memo

Answers:

The amount for which a dealer buys an article from a producer or manufacturer is called the **cost price**. The price marked on the article is called the **marked price** and the price of the article after discount is the **selling price**.

1A . R239,96−R59,75=R180,21

1B. R9 875+R790=R10 665

1C. R299,50−R44,925=R1 254,58

1D. R15 995+R799,75=R16 794,75

2A. R1 360 ÷ R1 523 x 100 =89%. So discount is 100%−89%=11%

2B. R527,40 ÷ R586 x 100 =90%. So discount is 100%−90%=10%

3A. c– R1800

The full price of the item is 100% = R1620

But the shopkeeper got 10% discount that is included in the R1620.

The original amount is calculated as follows: $\frac{100}{90}$ X R1620 = R1800

3B. d– R13 200

Step 1

The cost price of 5 dining tables = R55000.

The cost price of 1 dining table = $\frac{55000}{5}$ = R11000.

Step 2

According to the question, the shopkeeper makes 20% profit on selling of dining tables.

We know that, selling price = $\frac{100 + \text{profit\%}}{100}$ × cost price

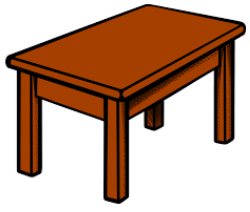
$= \frac{100 + 20}{100} \times 11000$

$= \frac{120}{100} \times 11000$

= 13200

Step 3

Therefore, the selling price of one dining table is **R13200.**



Finance Worksheet– Profit and Loss Memo

Answers continued:

3C. a- R1670

Matthew bought a video game for R1458 excluding 15% tax. Calculate the tax. What is the final amount he must pay.

Calculation:

Tax: R1458 x $\frac{15}{100}$ = R218.70

Total price paid: R1458 + R218.70 = R1676,70

3D. d– R540 000

Step 1

The cost price of the house is R2950000. The money spent on renovation is R125000. And then the money spent every year for maintenance of the house is R11000.

Step 2

The total money spent on maintenance of the house for 11 years is equal to 11 × R11000 = R121000.

Step 3

The total money spent on the house after it is bought, till the time it is sold again, will be equal to R2950000 + R125000+ R121000 = R3196000.

Step 4

The selling price of the house is R3736000. The profit made is equal to the difference of selling price and the total money invested on the house, which is R3736000 - R3196000 = **R540000**.

3E. c– R39 200

Step 1

The cost price of each guitar was R224, and then he sold them all at $\frac{5}{4}$ of the cost price of each guitar.

Step 2

This means he sold each guitar at $\frac{5}{4}$ × 224 = R280

Step 3

The total money he had after selling the guitars is R280 × 140 = R39200.

Fun for the weekend!!

1

What are three different whole numbers whose sum AND product are equal?

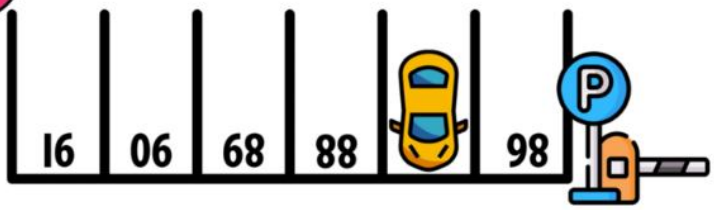
$A + B + C = D$

$A \times B \times C = D$

2

What can you put between a 7 and an 8 so that the result is GREATER THAN 7, but LESS THAN 8?

3



What is the number of the parking spot occupied by the car in the diagram above?

4

What is the value of the missing number in the diagram?

Fun for the weekend Answers!!

What are three different whole numbers whose sum AND product are equal?

A + B + C = D
A × B × C = D

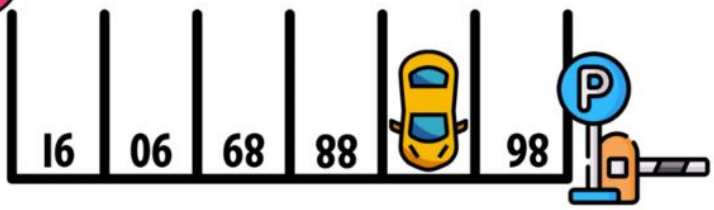
1.

A. 1
B. 2
C. 3

1+2+3= 6
1x2x3= 6

2. If you add a decimal point , in the middle of 7 and 8 (7,8) the result is greater than 7 and less than 8.

What can you put between a 7 and an 8 so that the result is GREATER THAN 7, but LESS THAN 8?



What is the number of the parking spot occupied by the car in the diagram above?

3. 87 Flip the diagram upside down.
The answer is 87.

What is the value of the missing number in the diagram?

4. Value of **?** is 6