Volume of a Cylinder:

3.14 x 27

V = 28.26

Volume of a Sphere:

V = pi x r2 x h

V = 3.14 x 9 x 5

V = 47.1

V(total) = 75.36

Store A:

8 apples for $4.40

32 apples for 17.60

30 apples is the price of 32 apples subtract 2 apples (4.40 / 4)

4.40 / 2 = 1.10

17.60 – 2.20 = 15.40

Store B:

12 apples for $5.76

It is 0.48/apple at Store B.

30 apples is 14.40

15

Volume of a Cube:

= l x w x h

14 x 14 x 18

= 3528

Volume of a Cone:

= pi x radius squared x height divided by 2

= 3.14 x 49 x 10

= 1538.60

3528 + 1538.6

20 x 8 = 160 x 0.4

12.50 x 0.16

14.50

=750.

16 x 11 x 3.14

Store A sells 12 pears for 6.48

12 x 5

= 60

6.48 x 5 (12 x 5)

= 32.40

Store B sells 5 pears for 2.65

5 x 12

2.65 x 12 (5 x 12)

= 31.80

V = 2 x pi x r cubed divided by 3 + pi x r squared x height

2 x 3.14 x 27 + 3.14 x 9 x 5

= 169.56 + 141.3

P-Doggs Theorem:

a2 + b2 = c2

6 x 6 + 6 x 6 = 10 x 10

36 + 36 = 100

Understanding the Problem:

Find volume of empty space

To find volume of empty space:

To solve problem:

I must take the volume of a cube and subtract the volume of a cube:

V = l x w x h – 4 x pi x r cubed divided by 3.

V = 8 x 8 x 8 – 4 x 3.14 x 64 / 3

V = 512 – 267.95

V = 244.05

Understanding the Problem:

Determine the area of this shape

To solve problem:

2 areas required to solve this problem: a triangle and a semicircle.

A = b x h / 2 + pi x r squared / 2.

A = 16 x 12 / 2 + 3.14 x 64 / 2

A = 96 + 100.48

A = 196.48

Store A: 90.5 cents per pound.

Store B: 88.3 cents per pound.

David’s Wage: 12.75/hr.

Vanessa’s Wage: 13.00

Bettina’s Wage: approx. 13.30/hr. (13.29/hr.)

Angelo’s Wage: 13.42/hr.

Deal #1: 1.25/L

Deal #2: 1.30/L

Deal #3: 1.50/L

Deal #1: 1.17/L

Deal #2: 1.20/L

Deal #3: 1.25/L

107 / 5 = 21.4 km/h of charging time.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Rectangle Letter | Length | Width | Area | Perimeter |
| A | 4 m | 4 m | 16 m | 16 m |
| B | 6 m | 2 m | 12 m | 16 m |
| C | 1 m | 7 m | 7 m | 16 m |
| D | 5 m | 3 m | 15 m | 16 m |
| Rectangle Number | Length | Width | Area | Perimeter |
| 1 | 4 cm | 4 cm | 16 cm | 16 cm |
| 2 | 8 cm | 2 cm | 16 cm | 20 cm |
| 3 | 5 cm | 3 cm | 15 cm | 16 cm |
| 4 | 6 cm | 2 cm | 12 cm | 16 cm |

42/7 = 630/x

42 \* x = 630 x 7

42x/42 = 4410/42

x=105

127/8 = 84/x

127 \* x = 84 x 8

127x/127 = 672/127

x=5

3/5 = x/15

5 \* x = 15 x 3

5x/5 = 45/5

x=9

¼ = x/20

4x/4 = 20/4

x=5

9.50/250 = 0.038 (0.04)

1.00 = 1/0.6663

1 x 218 = 218/218 x 0.66

218/0.66

Unit Rates

315/20 = 15.75

David’s earnings:

534.25/35 = 15.26/hr

Vanessa’s earnings:

16.00

Bettina’s Wage:

376.95/23 = 16.39/hr.

Angelo’s Wage:

289.95/18 = 16.11/hr

Speed

Speed = distance/time

Red Car:

12/6 = 2 km/h

Blue Car:

12/4 = 3 km/h

Green Car:

8/4 = 2 km/h

Red Car:

|  |  |
| --- | --- |
| Time (hr.) | Distance (km) |
| 0 | 0 |
| 1 | 5 |
| 2 | 10 |

Red car is traveling at 5 km/h

Blue Car:

|  |  |
| --- | --- |
| Time (hr.) | Distance (km) |
| 0 | 0 |
| 2 | 8 |
| 4 | 16 |

Blue car is traveling at 4 km/h

Green Car:

|  |  |
| --- | --- |
| Time (hr.) | Distance (km) |
| 0 | 0 |
| 3 | 9 |
| 6 | 18 |

Green car is traveling at 3 km/h

Red Car travels 325 km in 4 hours.

The red car travels at 81.25 km/h.

Blue Car travels 150 km in 8 ½ hours.

The blue car travels at 17.65 km/h.

Green Car travels 350 km in 8 hours.

The green car travels at 43.75 km/h.

Unit Rates

Deal 1 is a 2L carton of orange juice for $2.50

2.50/2

1.25/L.

Deal 2 is a 3L carton of orange juice for $3.50

3.50/3

= 1.17/L.

Deal 3 a 1L carton of orange juice for $1.50

1.50/1

= 1.50/L

Deal 1 is a 3L carton of orange juice for $3.00, which equals 1.00/L

Deal 2 is 1 L for 2.00, equivalent to 0.50/L

Deal 3 is 2 L for 1.00, equivalent to 0.

Ratios

To do this, I need to add the part to part ratio together for a whole ratio.

Then, I take the whole number and divide it by the amount we need.

6 + 1 = 7/637 = 0.01

0.06: 0.01

Measurement Conversions

Vinegar to water:

1 : 5 = x : 7

1/5 = 7/x

1/5 = 7x5/x\*7

1x = 35

x = 35 – 4.5

Distance on a map compared to real life

Kingston to Guelph on a map: 4.5 cm.

1:69 = 4.5/x

1/69 = 4.5/x

1/69\*69 = 4.5\*69/x

4.5\*69 = 310.5

1 : 23 = 11.8/x

1/23 = 11.8/x

1/23 x 23 = 11.8x23/x

11.8\*23 = 271.4

The scale factor is 4, so I need to multiply each side length by 4.

AB = 3 \* 4 = 12

BC = 3 \* 4 = 12

CD = 3 \* 4 = 12

DE = 3.4 \* 4 = 13.6

EA = 3.4 \* 4 = 13.6

Hourly Wages

747/9

=83 x 4

=332

539/7 = 77

77\*6 = 462

Sarah:

576 / 8 = 72

72 x 2 = 144

Bob

400 / 6 = 66.67

66.67 x 2 = 133.34

Unit Rates – Gas per 100 km.

Bob:

9L/100 km.

27.3L/650km.

$40.95 spent on gas.

Sarah:

12.4L/100km.

84.5L/650km.

126.75 spent on gas.

Proportional Reasoning

6:25 = x:150

6\*x = 25:150

6x/6 = 150/6

x= 36

Cindy:

4:20 = x:80

4x/4 = 80/4

x =16

John:

6:20 = x:80

6x/6 = 80/6

x=24

Cindy:

10:50 = x:150

10 x 150/10 = 15

x= 30 x 9 = 270

John:

15:50 = x:150

15 x 150/15 = 10

x= 45 x 9 = 405

Investment Interest

2100 x 0.0237 = 49.77

2100+49.77 = 2149.77

2149.77\*0.0237 = 50.94

2149.77+50.94

1000\*0.325 = 325

100+325=1325

2700\*0.05=135

Discounts

Baby Doll 1:

90\*0.2 = 18

90-18 = 72

72\*0.15 = 10.80

72-10.80= 61.20

Baby Doll 2:

90\*0.35 = 31.5

90-31.50=58.50

Skateboard 1

125.95\*0.4 = 50.38

125.95-50.38 = 75.97

Skateboard 2

169.95 x 0.6 = 101.97

169.95-101.97 = 67.98

156.95\*0.1 = 15.69

156.95-15.69

149.99 x 0.2 = 30

149.99 – 30 = 119.99

119.99 \* 0.12 = 14.40

119.99 + 14.40 = 134.39

189.99 x 0.15 = 28.50

189.99 – 28.50 = 161.49

Fractions to Percent

9/15 = 0.60 (60%)

5/10 = 0.50 (50%)

Also written as ½ = 50%.

46/100 = 0.46 (46%)

Also written as 23/50 = 46%

Proportional Reasoning

1/6 = 0.16666 (16.66%)

Rate of Pay

Marcia Earns 13.50 per hour delivering food for the Fast Food Houses in the neighbourhood. Last week she work 15 hours. How much did she earned last week?

Marcia earns $0 for 0 hours of work.

She works 15 hours at 13.35/hr. The equation is this:

13.50\*15 = 202.5

Rochelle sells cars and trucks. She earns a base salary of $1400 each month. She also earns 3% commission on her sales for each month. Last month she sold vehicles with a total value of $260 500.

What are Rochelle’s earnings for last month?

Rochelle earns $1400 each month. So the equation starts with $1400 \_ $\_\_\_ = $\_\_\_\_\_.

She earned $260 500 in sales each month and she earns 3 % of it, so we need to find 3% of $260 500 so we start with $260 500 \* 0.03 = $7815

Now we add the total of Rochelle’s commission to her base salary. So $1400 + $7815 = $9215

Jene sells clothing at a onesies boutique. She earns a base salary $325/wk. She earns 2.5% commission on her total sales each week. Last week she earned $450.

What were Jene’s total clothing sales for last week?

I need to calculate her total earnings for the last week, so the equation starts with $\_\_\_ + $\_\_\_ = $\_\_\_\_\_\_.

I already know that Jene earns $325/wk. so the equation’s now is $325 + $\_\_\_\_ = $\_\_\_\_\_\_.

I know she earned $425 last week and she earns 2.5% of it. So I need to find 2.5% of 425. So $425 x 0.025 = 11.25

Now I added the commission to the weekly base salary.

325 + 11.25 = 336.25

Conversion Rate

Christine is going to New York City to see a music concert. She needs to convert 550 Canadian Dollars into US Dollars. The exchange rate at her bank is $1 CAD = $0.78 USD.

I need to figure out how much she will have in US Dollars. The easiest way to do it is to multiply the Canadian dollars with the US exchange rate:

550 \* 0.78 = 429 USD

Therefore, Christine will have 429 US Dollars.

Dianne is going on a trip to France. She needs to convert 2000 Canadian Dollars into Euros. She will use the money exchange service at the airport. They charge 15 Euros for each transaction. The exchange rate is 1 CAD = €0.68.

How much Euros will she have from each transaction?

I first need to know how much Euros she gets from $2000 x €0.68 = €1360

She was charged 15 Euros for the transaction, so I subtracted 1360 from 15 to get 1345.

Therefore, Dianne will have 1345 Euros to spend in France.

Kathy is going to Japan. She exchanged CAD to Yens. She used the airport’s money exchange service. She was charged ¥550 Yen for the transaction. She got ¥198 805 Yen back. The exchange is 1 CAD to ¥94.55 Yen.

How much Canadian Dollars she exchanged?

I need to make an equation to get this problem solved:

Y = 198 805 – 550. Y is the amount of Yen.

I will substitute the total Yen for the exchange rate Yen.

Linear Relations

Gurdeep withdraws the same amount of money from his savings every week, x represents the number of weeks and y represents the amount left in his savings.

Converting Unit Rates

The equation Sarah uses is C = 10t + 5. Sarah charges people $10 per hour on top of her base cost of $5.

Therefore, the equation is a partial variation that starts at 5.

Prices per beverage:

If a person consumed 7 beverages, the cost is $56. I divided 56 by 7 to get the price per beverage: 56 / 7 = 8.

Therefore, the price for 1 beverage is 8.

Since I don’t know how much the entrance fee and how much the raffle tickets are worth, so I must go by assumption.

Making Equations into Problems:

To figure out the female runner’s speed, I need to figure out an equation that will work, so I used: s = d/t: s is the speed that she ran, d is the distance she ran and t is the time she was running for.

I then plugged in the distance: 60 km and the time: 4 hours into the equation. The equation is something like this: s = 60/4

I then divided d by t (60 by 40) to get her average speed: 60/4 = 15.

Therefore, she ran an average of 15 km/h.

Sarah owns a wedding cake business. She charges the same price for all of her wedding cakes. If she sells 4 cakes, she makes $1200. How much does she make per cake sold?

I must again make another equation that shows the relationship between how many cakes she sold and the amount of money she makes in revenue: p = r/c: p is the price per cake, r is the revenue and c is how much wedding cakes she’s sold.

Since Sarah makes $1200 for 4 wedding cakes. I must substitute r for 1200 and c for 4: p = 1200/4.

Divide 1200 by 4 to get the price per wedding cake: 1200/4 = 300

Therefore, Sarah charges $300 per wedding cake.

Sarah is a lawyer. She gets paid on an hourly basis; she charges $400 for 4 hours. How much does Sarah make per hour?

I need to make another equation that shows how much she makes compared to her hours: w = i/h: w is her wage which equals i/h, i’s her income and h is how much hours she works.

I will substitute our letters for their respective numbers: i becomes 400 and c becomes 4: w = 400/4.

I then divided 400 by 4 to get the answer: 400/4 = 100

Therefore, Sarah charges $100/hr.