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| --- | --- | --- | --- | --- |
|  | | Mathematics Essentials 2018  Unit 2 Test 1  Task Weighting: 9% | | |
| Student Name: |  | |  |

Total Marks: 61

**Calculator Free** - **No calculator or notes permitted for this section.**

Time Allowed: 20 Minutes Total Marks: 24

***Show all working wherever necessary to obtain full marks.***

**Question 1** [5 marks: 1, 2, 2]

Simplify the following ratios.

a)10 : 15 b) 1.5 : 6 c) :

**Question 2** [2 marks]

Divide $200 in the ratio 6:4

**Question 3** [2 marks]

Simplify the ratio 4 Days **:** 2 Weeks

**Question 4** [2 marks]

Calculate the simple interest on $1500 at a rate of 10% p. a. over 2 years?

**Question 5** [3 marks]

Convert 50 m/sec into km/hr (Show calculations so your answer can be checked)

**Question 6** [2 marks]

Decrease 500 by 15%

**Question 7** [2 marks: 1, 1]

Answer the following:

1. An increase of 10% followed by a decrease of 10% means an overall change of 0%

True or False

1. ­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a decrease in the value of a property or vehicle.

**Question 8** [1 mark]

Write 0.072 as a percentage

**Question 9** [5 marks: 1, 2, 2]

In a car park, 10 cars are white, 5 are blue, 3 are black and 2 are red.

1. What is the ratio of black cars to white cars?
2. What is the ratio of blue cars to total cars? Simplify your answer.
3. What percentage of the cars are red?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | Mathematics Essentials 2018  Unit 2 Test 1  Task Weighting: 9% | | |
| Student Name: |  | |  |

**Calculator Assumed** – **A calculator and 1 A4 page of notes are permitted for this section.**

Time Allowed: 35 Minutes Total Marks: 37

***Show all working wherever necessary to obtain full marks.***

**Question 1** [3 Marks]

If three students share $50 cash between themselves equally, explain how much each student ends up with? Round your answer appropriately.

**Question 2** [2 Marks]

In a mug of cappucino coffee, coffee syrup and hot milk are mixed in the ratio 2 : 3. A large mug holds 420 mL of cappucino coffee. How many mL of hot milk are in the mug of coffee?

**Question 3** [3 Marks: 1, 1, 1]

Complete the following table:

|  |  |  |
| --- | --- | --- |
| **Distance Travelled** | **Time Taken** | **Average Speed** |
| 120km | 2 hours |  |
|  | 4 hours | 50km/h |
| 150km |  | 30km/h |

**Question 4** [5 Marks: 2, 3]

1. Convert 3.6 km / h to m / s

1. If a go-cart travelled 2100 metres for 3 minutes, what was its speed in kilometres per hour?

**Question 5**  [6 Marks: 2, 2, 2]

A petrol station has the following prices:

|  |  |
| --- | --- |
| ULP (Unleaded) | 125.6 cents per litre |
| PULP (Premium Unleaded) | 141.5 cent per litre |
| Diesel | 135.8 cents per litre |

Find the cost of:

1. 57.2L of Diesel, round your answer to nearest 10 cents.
2. 82L of ULP, round your answer to the nearest dollar.
3. If you only had $40 how many litres of ULP could you buy? Round your answer to 1 decimal place.

**Question 6** [5 marks: 2, 1, 2]

Don uses a drip system to water the small plants in his hothouse. Each plant needs 50 mL of water per day.

1. How many litres of water are needed per day for 25 plants?
2. If 1 mL of water contains 12 drops, how many drops are needed to water each plant per day?
3. What is the drip rate (in drops per minute) needed for each plant if the drip system runs for 4 hours per day?

**Question 7** [5 marks: 2, 3]

Select the best buy in each case below: (Show working to justify your choice)

(a) 250 g pack for $1.75 or 500 g pack for $3.55

(b) 200 g pack for $3.40 or 250 g pack for $4.00

**Question 8** [2 marks]

In Australia, 10% GST is added to the price of most items to determine the selling price. A Nike Shirt was priced at $86 before GST. What will the shirt cost after GST?

**Question 9** [6 marks]

Thomas wanted to purchase a car valued at $13 290. He already had $2 500 in savings and wanted to borrow the rest from his rich Uncle Dave. Uncle Dave agreed to loan Thomas the money, on the condition he pay him back monthly, over 5 years at 8.5% p.a simple interest.

How much must each of Thomas’s monthly repayments be to ensure he pays the loan off within the given time frame? (Round your answer to the nearest cent?