Year – 11 Conversion Questions #3

1.   1 mile per hour = 1.609 kilometres per hour. How fast is 100 mph in kph?

2.   1 mile per hour = 0.869 knots. Give 33 knots in mph.

3.   1 gallon = 3.785 litres. What is a 50 litre petrol tank in gallons?

4.   1 yard =914.4 mm. If a table is 2.5 yards long, how far is that in mm?

5.   1 acre = 0.004047 km^2. What is a farm of 200 acres in km^2?

6.   1 pound = 0.4536 kilograms. How heavy in kg is a 240 pound linebacker?

7.   Crude oil is sold in barrels. One barrel is 159 litres. How many litres is 2.5 million barrels?

8.   1 foot is 0.3048 metres. How many metres is 20 feet?

9.   1 New Zealand Dollar equals 0.47 Great British Pounds on 24 February 2016. What would 2,300 NZ$ be worth in GB£ at that time?

10.   1 New Zealand Dollar equals 1.42 Fiji Dollars on 24 February 2016. What would 300 FJ$ be worth in NZ$ at that time?

11.   1 Euro buys 1.662 NZ$. How many NZ$ do I need to buy a book costing 24.50 Euros?

12.   1 troy ounce = 31.1 grams. Gold costs $1200US per ounce. How much does the 9 grams of gold in a ring cost?

13.   A light year is 9.46×10^{12} km. The distance to the nearest star is 4.22 light years. How many kilometres is that?

14.   250.00 USD = 227.136 EUR on 24 February 2016. What was the exchange rate?

15.   If I run 100 metres in 13.2 seconds, what is my speed in kilometres per hour?

Answers – Year 11 Conversion Questions #3

The exact methods used can differ, so the following are only suggested calculations

1. Need more in kph $\Rightarrow$ 100 mph = 100 × 1.609 = **160.9 kph**.

2. Need more in mph $\Rightarrow$ 33 mph = 33 ÷ 0.869 = **38 mph**.

3. Need smaller number gallons $\Rightarrow$ 50 gallons = 50 ÷ 3.785 = **13.21 gallons**.

4. Need more in mm $\Rightarrow$ 2.5 yards = 2.5 × 914.4 = **2286 mm**.

5. Need smaller number of km^2 $\Rightarrow$ 200 acres = 200 × 0.004047 = **0.8094 km^2**.

6. Need smaller number of kg $\Rightarrow$ 240 × 0.4536 = **108.86 kg**.

7. Need more litres $\Rightarrow$ 2.5 m × 159 = **397.5 million litres**.

8. Need less metres $\Rightarrow$ 20 ft = 20 × 0.3048 = **6.096 m**.

9. Less GB than NZ $\Rightarrow$ 2300$ = 2300 × 0.47 = **£1,081 GB**.

10. Less NZ than FJ $\Rightarrow$ 300$ = 300 ÷ 1.42 = **$211.27 NZ**.

11. More NZ than EUR $\Rightarrow$ €24.50 = 24.5 × 1.662 = **$40.72 NZ**.

12. Troy ounce is smaller number $\Rightarrow$ 9 grams = 9 ÷ 31.1 = 0.2894 troy ounces.
    Cost is bigger number than weight $\Rightarrow$ 0.2894 troy oz. = 0.2984 × 1200 = **$347 US**.

13. More km that light years $\Rightarrow$ 4.22 light years = 4.22 × 9.46 × 10^{12} km = **3.99 × 10^{13} km**.

14. 250.00 USD = 227.136 EUR so the rate is 1 : 250/227.136 = **1 USD = 1.1.00 EUR** or the other way round as 250/227.136 : 1 which is **1 EUR = 0.9085 USD**.

15. 100m in 13.2 seconds is 100 ÷ 13.2 = 7.575 m per second = 7.575 × 60 = 454.5 metres per minute = 454.5 × 60 = 27,272 metres per hour = **27.3 km per hour**.