Routine Percentages etc Practice #1

1. If 1 kilometre per hour is 0.621 miles per hour, how many mph is 88 kph?

2. When a 120 litre tank empties itself in 2 ½ hours, what rate is it emptying at?

3. A $120 jacket is "one fifth off". How much does it cost now?

4. What is 19% of $140?

5. A chocolate cake recipe uses ½ a cup of flour, ½ a cup of sugar and 1 egg. How many cakes can be made with 2 cups of flour and 5 eggs?

6. What is seven-eights as a percentage?

7. Which is greater, three-fifths or 65%?

8. If 1 nautical mile per day is 0.048 kilometres per hour, how many nautical miles per day is the same as 30 kph?

9. A gardener buys 20 pine and 12 evergreen seedlings. What percentage are pine?

10. Increase $45 by 20%.

11. If a machine can pack 55 cans per minute, how long will it take to pack 480 cans?

12. If the ratio of boys to girls is 2:3, and there are 16 boys, how many girls are there?

13. A rare postage stamp rose in value from $15,000 to $18,500. What was the % increase?

14. Another stamp rose in value by 22.5% to $14,700. What did it cost before?

15. There are 16 red roses out of a total of 40 roses. What is this as the simplest fraction?

16. If a mix is 5 L petrol and 0.5 L oil, what is that as a ratio?

17. A petrol tank is half full. At the station a third of a tank is added. What fraction of the tank is empty?

18. Another tank is four fifths full with petrol. A third of the petrol is used. What fraction remains of a whole tank?

19. Share $200 in the ratio 3:5.

20. If it takes a painter 3 hours to do a room, how long should it take 2 painters to do 8 rooms?

Answers: Routine Percentages etc Practice #1

There are usually many ways of answering these questions (but only one correct answer).

1.   1 kph = 0.621 mph $\xrightarrow{\times\,0.621}$ 88 × 0.621 =   **54.65 mph**

2.   120 L in 2.5 hours   120 ÷ 2.5 =   **48 litres per hour**

3. $\frac{1}{5}$ off means $\frac{4}{5}$ is left. $\frac{4}{5}$ of $120 = $\frac{4}{5}$ × 120 =   **$96**

4.   19% of 14 = $^{19}/_{100}$ × 140 =   **$26.60**

5.   2 cups = 4 × ½, so 2 cups can make 4 cakes

      5 eggs make 5 cakes, but 4 is already our limit   **4 cakes**

6. $\frac{7}{8}$ = 7 ÷ 8 = 0.875 = $\frac{87.5}{100}$ =   **87.5%**

7. $\frac{3}{5}$ = 3 ÷ 5 = 0.6   65% = $\frac{65}{100}$ = 0.65   **65% is larger** (must show working)

8.   1 nm/d = 0.048 kph $\xleftarrow{\div\,0.048}$ 30 ÷ 0.048 =   **625 nautical miles/day**

9.   20 out of 32 (20 + 12). $\frac{20}{32}$ = 20 ÷ 32 = 0.625 = $\frac{62.5}{100}$ =   **62.5%**

10.   20% of $45 = $^{20}/_{100}$ × 45 = 9.   Add this to original 45 =   **$54**

11.   480 ÷ 55 = 8.727   No need to round   **8.73 mins** (8 m 44 s)

12.   2 : 3 = 16 : 24   (× 8 on both sides)   **24 girls**

13.   The rise is $3500 ($18500 − $15000). $3500 change on the original $15000

      = $^{3500}/_{15000}$ = 0.23333   0.23333 × 100 =   **23.33%**

14.   22.5% increase = 122.5% of the original price = 1.225 as a decimal.

      So 1.225 × start = $14700. Start = $14700 ÷ 1.225 =   **$12000**

15.   16 out of 40 = $^{16}/_{40}$ = $^{2\,\times\,8}/_{5\,\times\,8}$ = $\frac{2}{5}$

16.   5 : 0.5 = 50 : 5 (× 10 both sides) =   **10 : 1**

17. $\frac{1}{2}$ + $\frac{1}{3}$ = $\frac{5}{6}$ full $\frac{1}{6}$ **empty**

18.   Using $\frac{1}{3}$ means $\frac{2}{3}$ is left. $\frac{2}{3}$ of $\frac{4}{5}$ = $\frac{2}{3}$ × $\frac{4}{5}$ = $\frac{8}{15}$ **of a tank**

19.   3 : 5 so 3 + 5 = 8 shares. $200 ÷ 8 = $25 a share   **Answer = $75 : $125**

20.   2 painters are twice as fast, so room every 1.5 hours. 8 rooms × 1.5 = **12 hours**

(Questions 12, 16 and 20 are Merit)