Basic Percentages and Fractions #6 (Extension)

1. Write is 2.25% as a fraction in its simplest whole number terms.

2. Write is 135% as a fraction in its simplest improper form.

3. What is 0.0005 as a percentage?

4. Fill in the missing value: $\frac{6}{14} = \frac{15}{?}$

5. Fill in the missing value: $3.6\% = \frac{9}{?}$

6. A runner can complete three-eighths of a lap in a minute. How long to do a full lap?

7. If each bus takes 35 passengers, how many buses does it take to transport 250 people?

8. If milk rose in price from $2.40 to $2.45. What % price increase is this?

9. Which is greatest: $\frac{36}{75}$, $\frac{15}{31}$ or $\frac{71}{148}$

10. If Bill has made it to a third of the way to the target, and Jim has made it half way to the target, how much closer is Jim as a percentage of the whole way?

11. The earth is made up of 3 main layers: the crust, mantle and core. The mantle makes up $^4/_5$ of the earth and the core makes $^1/_6$ of the earth. What fraction is the crust?

12. If 15% discount gives a price cheaper by $3.60, what was the original price?

13. If an investment of $20,000 increases to $22,800, what was the interest paid?

14. If a price fell to $44 from $50, what was the percent decrease?

15. If a two-thirds of a pizza has pepperoni, and three-fifths of it has olives, what is the smallest possible fraction of the pizza that must have both pepperoni **and** olives?

16. Alice bought some material. She used $^3/_5$ of it to make curtains and the rest to make 2 bedspreads. If each bedspread used 12 m, how much did she buy at the start?

17. $^1/_4$ of the population of Europe speak French. $^1/_5$ of the population of Europe live in France. What fraction of the population speak French but cannot live in France?

18. If 15 students got E's and that was $^3/_5$ of all the students, how many students were there?

19. Police report incidents of serious crime falling by 403 crimes per week to 8,754. What is the drop as a percentage?

20. If a patient's blood count rises 25% to end at 4.5 million, what was it originally?

Answers: Basic Percentages and Fractions #6 (Extension)

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

1. 2.25% = $\frac{2.25}{100} = \frac{225}{10000} = \mathbf{\frac{9}{400}}$

2. 135% = $\frac{135}{100} = \mathbf{\frac{27}{20}}$

3. 0.0005 × 100 = **0.05%**

4. $\frac{6}{14} = \frac{15}{\mathbf{35}}$ (top and bottom × 2.5)

5. 3.6% = $\frac{3.6}{100} = \frac{36}{1000}$ (top and bottom × 10 to get rid of awkward decimal)

a. $\frac{36}{1000} = \frac{9}{\mathbf{250}}$ (top and bottom ÷ 4)

6. $^{3}/_{8}$ in one minute, so $^{1}/_{8}$ every 20 seconds. 8 × 20s = **160 seconds** (= $2\,^{2}/_{3}$ minutes)

7. 250 ÷ 35 = 7.1428 ⇒ **8 buses**. Must round up, or 5 people are left behind.

8. Increase of 0.05 on start total of 2.40 = $^{0.05}/_{2.4}$ = 0.020833 = **2.08%** (rounded)

9. $\frac{36}{75}$ = 0.48, $\frac{15}{31}$ = 0.48387, $\frac{71}{148}$ = 0.4797, so it is $\mathbf{\frac{15}{31}}$

10. $\frac{1}{2} - \frac{1}{3} = \mathbf{\frac{1}{6}}$ closer $\frac{1}{6}$ = 0.16666 = **16.67% further**

11. $1 - \frac{4}{5} - \frac{1}{6} = \mathbf{\frac{1}{30}}$ remaining

12. $^{15}/_{100}$ × something = 3.6. Reversing that process gives that something = 3.6 × $^{100}/_{15}$ = **$24**

13. Increase of 2800 on start total of 20000 = $^{2800}/_{20000}$ = 0.14. = **14%**

14. Decrease of 6 (50 – 44) on total of start total of 50 = $^{6}/_{50}$ = 0.12 = **12%**

15. $^{2}/_{3} + {}^{3}/_{5} = {}^{19}/_{15} = 1 + {}^{4}/_{15}$. So the overlap must be at least $\mathbf{^{4}/_{15}}$

16. Each bedspread was $^{1}/_{5}$ of the total. So the total was 5 × 12 = 60 m.

17. $\frac{1}{4} - \frac{1}{5} = \frac{1}{20}$ So if every French person speaks French, there is still $\mathbf{\frac{1}{20}}$ left over

18. $^{3}/_{5}$ of total = 15, so $^{1}/_{5}$ of total = 5. As $^{1}/_{5}$ × 25 = 5, there must have been **25** students

19. The fall is 403 from a **start** of 9157 (8754 + 403) = $^{403}/_{9157}$ = 0.04401
    0.04401 × 100 = **4.40%** decrease (rounded)

20. $^{125}/_{100}$ × something = 4 5M. Reversing that gives that something = 4.5M × $^{100}/_{125}$
    = **3.6 million** (Note you **cannot** find 25% of 4.5M and take it off – that will not work.)