

Chapter 01: General Mathematics

Tritak: Brown and Mulholland's Drug Calculations: Ratio and Proportion Problems for Clinical Practice, 11th Edition

ESSAY

Directions: Solve the following problems.

1. Add and reduce to lowest terms: $\frac{7}{8} + \frac{1}{8}$

ANS:

$$\frac{7}{8} + \frac{1}{8} = \frac{8}{8} = 1$$

2. Add: $\frac{1}{3} + \frac{1}{8}$

ANS:

$$\frac{1}{3} + \frac{1}{8} = \frac{8}{24} + \frac{3}{24} = \frac{11}{24}$$

3. Multiply and reduce to lowest terms: $\frac{2}{3} \times \frac{1}{8}$

ANS:

$$\frac{2}{3} \times \frac{1}{8} = \frac{2}{24} = \frac{1}{12}$$

4. Multiply and reduce to lowest terms: $\frac{1}{4} \times \frac{1}{10}$

ANS:

$$\frac{1}{4} \times \frac{1}{10} = \frac{1}{40}$$

5. Divide and reduce to lowest terms: $\frac{1}{4} \div \frac{3}{8}$

ANS:

$$\frac{1}{4} \div \frac{3}{8} = \frac{1}{4} \times \frac{8}{3} = \frac{8}{12} = \frac{2}{3}$$

6. Divide and reduce to lowest terms: $\frac{1}{2} \div \frac{1}{6}$

ANS:

$$\frac{1}{2} \div \frac{1}{6} = \frac{1}{2} \times \frac{6}{1} = 3$$

7. Which is greater, $\frac{1}{7}$ or $\frac{1}{9}$?

ANS:

$$\frac{1}{7}$$

8. Which is smaller, $\frac{1}{6}$ or $\frac{1}{8}$?

ANS:

$$\frac{1}{8}$$

9. Change to a decimal: $\frac{1}{8}$

ANS:

0.125

10. Change to a fraction: 0.008

ANS:

$$\frac{8}{1000} \left(\text{reduce to } \frac{1}{125} \right)$$

11. Which is smaller, 0.125 or 0.25? GRA

ANS:

0.125

12. Which is greater, 0.25 or 0.05?

ANS:

0.25

13. Round to the nearest tenth: 3.124

ANS:

3.1

14. Round to the nearest hundredth: 0.42877

ANS:

0.43

15. Round to the nearest whole number: 5.742

ANS:

6

16. Round to the nearest ten thousandth: 0.576391

ANS:
0.5764

17. Divide 7.35 by 0.25.

ANS:
29.4

18. Multiply 4.25 by 0.2.

ANS:
0.85

19. Find 5% of 75.

ANS:
 $0.05 \times 75 = 3.75$ (10% of 75 is 7.5; 5% would be one half of that)

20. Find 55% of 120.

ANS:
 $0.55 \times 120 = 66$ (a little more than one half of 120)

21. Write $\frac{1}{10}$ as a percentage and as a decimal.

GR

ANS:
10%, 0.1

22. Write 0.05 as a fraction and as a percentage.

ANS:
 $\frac{5}{100}$ (reduce to $\frac{1}{20}$), 5%

23. Write 85% as a fraction and as a decimal.

ANS:
 $\frac{85}{100}$ (reduce to $\frac{17}{20}$), 0.85

24. Change $1\frac{1}{5}$ to an improper fraction.

ANS:
 $\frac{6}{5}$

25. Change $\frac{20}{3}$ to a whole or mixed number.

ANS:

$$6\frac{2}{3}$$

26. Which is larger, tens or tenths?

ANS:

Tens

27. Write three hundred seventy seven thousandths as a decimal.

ANS:

0.377

28. Make 150 mL of a 50% strength solution. How many mL of the solute will be needed?

ANS:

75 mL

$$\begin{array}{ll} \textit{Know} & \textit{Want to Know} \\ 1 \text{ mL} : 2 \text{ mL} = x \text{ mL} : 150 \text{ mL} \\ 2x = 1 \times 150 = 150 \\ x = 75 \text{ mL} \end{array}$$

$$\begin{array}{l} \text{Proof: } 1 \times 150 = 150 \\ \quad \quad 2 \times 75 = 150 \end{array}$$

GRA .

29. You need to make a 75% Betadine solution for a total of 250 mL. How much Betadine will you need?

ANS:

187.5 mL

$$\begin{array}{ll} \textit{Know} & \textit{Want to Know} \\ 75 \text{ mL} : 100 \text{ mL} = x \text{ mL} : 250 \text{ mL} \\ 3 : 4 = x : 250 \\ 4x = 3 \times 250 = 750 \\ 4x = 750 \text{ mL} \\ x = 187.5 \text{ mL of Betadine. Add } 62.50 \text{ mL of solution for a total of } 250 \text{ mL.} \end{array}$$

$$\begin{array}{l} \text{Proof: } 3 \times 250 = 750 \\ \quad \quad 4 \times 187.5 = 750 \end{array}$$

30. You need to make a 10% solution of hydrogen peroxide for a total of 500 mL. You are using normal saline (NS) as the solvent. How many mL of hydrogen peroxide will you need?

ANS: