

ASE REVIEW PROBLEMS (ANSWERS)

Revised August 14, 2008

Fractions/ Mixed Numbers/Decimals / Integers/ Percentages

1.  $\frac{7}{8} + \frac{3}{4} =$

LCD = 8

$$\frac{7}{8} + \left(\frac{3}{4} \times \frac{2}{2}\right) =$$

$$\frac{7}{8} + \frac{6}{8} = \frac{13}{8} = 1\frac{5}{8}$$

2.  $\frac{3}{5} + \frac{2}{3} =$

LCD = 15

$$\left(\frac{3}{5} \times \frac{3}{3}\right) + \left(\frac{2}{3} \times \frac{5}{5}\right) =$$

$$\frac{9}{15} + \frac{10}{15} = \frac{19}{15} = 1\frac{4}{15}$$

3.  $\frac{9}{16} - \frac{1}{3} =$

LCD = 48

$$\left(\frac{9}{16} \times \frac{3}{3}\right) - \left(\frac{1}{3} \times \frac{16}{16}\right) =$$

$$\frac{27}{48} - \frac{16}{48} = \frac{11}{48}$$

4.  $\frac{24}{30} \times \frac{15}{36} =$

(Hint: Factor and “cancel”)

$$\frac{24}{30} \times \frac{15}{36} =$$

$$\frac{4 \times \cancel{6}}{5 \times \cancel{6}} \times \frac{\cancel{3} \times 5}{\cancel{3} \times 12} =$$

5.  $\frac{7}{9} \div \frac{2}{3} =$

Invert divisor and multiply

$$\frac{7}{9} \times \frac{3}{2} = \frac{21}{18} = 1\frac{3}{18} = 1\frac{1}{6}$$

or simplify

$$\frac{7}{\cancel{9}^3} \times \frac{\cancel{3}^1}{2} =$$

$$\frac{7}{3} \times \frac{1}{2} = \frac{7}{6} = 1\frac{1}{6}$$

$$\frac{\cancel{4}^1}{\cancel{3}^3} \times \frac{\cancel{5}^1}{\cancel{12}^3} = \frac{1}{3}$$

6.  $1\frac{2}{3} + 3\frac{1}{6} =$

LCD = 6

$$1\frac{4}{6} + 3\frac{1}{6} = 4\frac{5}{6}$$

$$7. 2\frac{1}{4} - 1\frac{7}{8} =$$

$$\text{LCD} = 8$$

$$2\frac{2}{8} - 1\frac{7}{8} \text{ or } 2\frac{2}{8} = 1\frac{10}{8}$$

$$\underline{-1\frac{7}{8} = -1\frac{7}{8}}$$

$$\frac{3}{8}$$

$$9. 7.26 \div 0.3 =$$

Since the divisor has one decimal place, we must multiply the divisor and dividend by 10. Therefore, the problem reads

$$72.6 \div 3 =$$

$$3 \overline{)24.2}$$

11. Express as a decimal:

$$\frac{11}{4} = \underline{\hspace{2cm}}$$

$$4 \overline{)11.00}$$

**Do NOT round unless indicated.**

$$13. 1.7 + 18.356 + 0.62 =$$

**Line up the decimal points**

$$\begin{array}{r} 1.7 \\ 18.356 \\ \underline{0.62} \\ 20.676 \end{array}$$

$$8. 43.5 \div 0.01 =$$

Since the divisor has two decimal places, we must multiply the divisor and dividend by 100. Therefore, the problem reads

$$4350 \div 1$$

$$1 \overline{)4350}$$

$$10. \frac{2}{50} = \underline{\hspace{2cm}}\%$$

$$\frac{2}{50} \times \frac{2}{2} = \frac{4}{100} = 4\%$$

$$\text{or } 50 \overline{)2.00}$$

$$0.04 \times 100 = 4\%$$

12. Express as a decimal:

$$\frac{2}{3} = \underline{\hspace{2cm}}$$

$$3 \overline{)2.000}$$

$$= 0.\overline{6}$$

$$14. 15.803 - 11.2467 =$$

$$\begin{array}{r} 15.8030 \\ -11.2467 \\ \hline 4.5563 \end{array}$$

$$15. \quad 4\frac{4}{5} \div 3\frac{2}{15} =$$

$$\frac{24}{5} \div \frac{47}{15} =$$

$$\frac{24}{5} \times \frac{15^3}{47} = \frac{72}{47} = 1\frac{25}{47}$$

### Percentage Problems

**For percentage problems, the use of proportions is very efficient**

$$\frac{a}{100} = \frac{b}{c}$$

$a = \%$  (Because % means division by 100)  
 $b =$  part of the whole  
 $c =$  the whole being discussed

16. 27 is 30% of \_\_\_\_\_

$$\frac{30}{100} = \frac{27}{x}$$

↓      **Cross Multiply**

$$30x = 2700$$

$$x = \frac{2700}{30}$$

$$x = 90$$

or

$$27 = .30x$$

$$\frac{27}{.30} = x$$

$$90 = x$$

17. 21 is \_\_\_\_\_% of 60

$$\frac{x}{100} = \frac{21}{60}$$

↓      **Cross Multiply**

$$60x = 2100$$

$$x = 35$$

or

$$21 = \frac{x}{100} \times 60$$

$$2100 = 60x$$

$$\frac{2100}{60} = x$$

$$35 = x$$

18. 12% of 44 is \_\_\_\_\_

$$\frac{12}{100} = \frac{x}{44} \quad \text{or} \quad .12 \times 44 = x$$

↓      **Cross Multiply**

$$100x = 528$$

$$x = 5.28$$

## Integers/Order of Operations

19.  $(-5)(51) = (\text{minus} \times \text{plus} = \text{minus})$       20.  $(-32) \div (-4) = (\text{minus} \div \text{minus} = \text{plus})$

$$(-5)(51) = -255$$

$$-32 \div -4 = 8$$

21.  $-19 + 16 - 11 + 13 =$

$$-3 - 11 + 13 =$$

$$-14 + 13 =$$

$$-1$$

**Multiply/ Divide in order from left to right, then Add/ Subtract in order from left to right**

22.  $7(-8) - 4(-6) =$   
          ↓           ↓ (multiply)

$$\begin{array}{r} -56 + 24 = \\ -32 \quad \quad \quad \text{(add)} \end{array}$$

23.  $-6(-3) + 2(-7) =$   
          ↓           ↓ (multiply)

$$\begin{array}{r} 18 + (-14) = \\ 18 - 14 = \\ 4 \end{array}$$

## Place Value and Rounding

**Review the place value names**

24. Round to the nearest ten:  $126.457 \rightarrow 130$

25. Round to the nearest tenth:  $126.456 \rightarrow 126.5$

26. Round to the nearest hundred:  $279.712 \rightarrow 300$

## Long Division

27.  $58029 \div 29 =$

$$\begin{array}{r} 2001 \\ 29 \overline{)58029} \\ \underline{58} \phantom{000} \\ 029 \phantom{00} \\ \underline{029} \phantom{00} \\ 0 \phantom{00} \end{array}$$