PRACTICE DRILL 13—PERCENTS (MIDDLE/UPPER LEVELS)

1. A bag of candies contains 15 butterscotches, 20 caramels, 5 peppermints, and 10 toffees.

   a) The butterscotches make up what percentage of the candies?

   b) The caramels?

   c) The peppermints?

   d) The toffees?

2. A student answered 75% of the questions on a test correctly and left 7% of the questions blank. What percentage of the questions did the student answer incorrectly?

3. Stephanie's closet contains 40 pairs of shoes. She has 8 pairs of sneakers, 12 sets of sandals, 16 pairs of boots, and the rest are high heels.

   a) What percentage of the shoes are sneakers?

   b) Sandals?

   c) Boots?

   d) High heels?

   e) How many high heels does Stephanie own?

4. A recipe for fruit punch calls for 4 cups of apple juice, 2 cups of cranberry juice, 3 cups of grape juice, and 1 cup of seltzer. What percentage of the punch is juice?

5. Five friends are chipping in for a birthday gift for their teacher. David and Jakob each contribute $13. Stephanie, Kate, and Janice each contribute $8.

   a) What percentage of the total did the girls contribute?

   b) The boys?

Practice Drill 13—Percents

1.   a) 30%

$$\frac{\text{butterscotches}}{\text{total}} = \frac{15}{50} = \frac{3}{10}$$

$$\frac{3}{10} \times 100 = \frac{300}{10} = 30\%$$

b) 40%

$$\frac{\text{caramels}}{\text{total}} = \frac{20}{50} = \frac{2}{5}$$

$$\frac{2}{5} \times 100 = \frac{200}{5} = 40\%$$

c) 10%

$$\frac{\text{peppermints}}{\text{total}} = \frac{5}{50} = \frac{1}{10}$$

$$\frac{1}{10} \times 100 = \frac{100}{10} = 10\%$$

d) 20%

$$\frac{\text{toffees}}{\text{total}} = \frac{10}{50} = \frac{1}{5}$$

$$\frac{1}{5} \times 100 = \frac{100}{5} = 20\%$$

2.   18%

100% = 75% + 7% + percentage of questions answered incorrectly

3.   a) 20%

$$\frac{\text{sneakers}}{\text{total}} = \frac{8}{40} = \frac{1}{5}$$
$$\frac{1}{5} \times 100 = \frac{100}{5} = 20\%$$

b) 30%

$$\frac{\text{sandals}}{\text{total}} = \frac{12}{40} = \frac{3}{10}$$
$$\frac{3}{10} \times 100 = \frac{300}{10} = 30\%$$

c) 40%

$$\frac{\text{boots}}{\text{total}} = \frac{16}{40} = \frac{2}{5}$$

$$\frac{2}{5} \times 100 = \frac{200}{5} = 40\%$$

d) 10%

sneakers + sandals + boots + high
heels = 100%

20% + 30% + 40% + h = 100%

h = 10%

e) 4

sneakers + sandals + boots + high
heels = 40

8 + 12 + 16 + h = 40

h = 4

4.   90%

$$\frac{\text{juice}}{\text{total}} = \frac{4+2+3}{4+2+3+1} = \frac{9}{10}$$

$$\frac{9}{10} \times 100 = \frac{900}{10} = 90\%$$

5.   a) 48%

$$\frac{\text{girls}}{\text{total}} = \frac{3(\$8)}{2(\$13)+3(\$8)} = \frac{24}{50}$$

$$\frac{24}{50} \times 100 = \frac{2400}{50} = 48\%$$

b) 52%

100% = girls + boys

100 = 48 + b

b = 52