3.3 Adding and Subtracting Unlike fractions
3.3 Exercise Set, page 199: 1, 11, 29, 45, 61, 65
3.4 Adding and Subtracting Mixed Numbers
3.4 Exercise Set, page 210: 1, 3,17, 21, 25, 49

3.5 Order, Exponents, and the Order of Operations
3.5 Exercise Set, page 220: 1, 3, 7, 15, 19, 25, 49, 51, 53

3.6 Fractions and Problem Solving
3.6 Exercise Set, page 227: 1, 5, 11, 13, 21, 33

3.4: 49

Objective C *Solve. For Exercises 49 and 50, the solutions have been started for you. Write each answer in simplest form. See Examples 7 and 8.*

49. To prevent intruding birds, birdhouses built for Eastern Bluebirds should have an entrance hole measuring $1\frac{1}{2}$ inches in diameter. Entrance holes in birdhouses for Mountain Bluebirds should measure $1\frac{9}{16}$ inches in diameter. How much wider should entrance holes for Mountain Bluebirds be than for Eastern Bluebirds? (*Source:* North American Bluebird Society)

Start the solution:

1. UNDERSTAND the problem. Reread it as many times as needed.
2. TRANSLATE into an equation. (Fill in the blanks.)

how much wider	is	larger entrance hole	minus	smaller entrance hole
↓	↓	↓	↓	↓
how much wider	=	$1\frac{9}{16}$ in	−	$1\frac{1}{2}$ in

Finish with:
3. SOLVE and
4. INTERPRET

$$1\tfrac{9}{16} - 1\tfrac{1}{2}$$
$$= (1-1) + \left(\tfrac{9}{16} - \tfrac{1}{2}\right)$$
$$= 0 + \tfrac{9}{16} - \tfrac{1}{2}$$
$$= \tfrac{9}{16} - \tfrac{1}{2}$$

$= \frac{9}{16} - \frac{1}{2}$

$= \frac{9}{16} - \left(\frac{1}{2}\right)\left(\frac{8}{8}\right)$

$= \frac{9}{16} - \frac{8}{16}$

$= \frac{9-8}{16} = \boxed{\frac{1}{16}}$

The entrance hole for Mountain Bluebirds should be 1/16 inch wider than that for Eastern Bluebirds.

$\frac{16(1)+9}{16} - \frac{(2)(1)+1}{2}$

$= \frac{25}{16} - \frac{3}{2}$

$= \frac{25}{16} - \left(\frac{3}{2}\right)\left(\frac{8}{8}\right)$

$= \frac{25-24}{16} = \boxed{\frac{1}{16}}$

3.5

$2 + 9 \div 3 \times 4$

2+9/3*4=14

$2+9=11$

$11 \div 3 = \frac{11}{3}$

$\left(\frac{11}{3}\right)(4) = \boxed{\frac{44}{3}}$

wrong order of operations

$2+(9 \div 3) \times 4$

$2+(3 \times 4)$

PEMDAS

$2 + (3 \times 4)$ PEMDAS

$2 + 12$

$\boxed{14}$

Memorize

Inequality Symbols

$<$ means *is less than.*

$>$ means *is greater than.*

$2 < 3 \iff 3 > 2$

equivalent

Memorize

Comparing Fractions

To determine which of two fractions is greater,

Step 1: Write the fractions as like fractions.

Step 2: The fraction with the greater numerator is the greater fraction.

3/10=0.3

2/7=0.2857

Memorize

Order of Operations

1. Perform all operations within parentheses ( ), brackets [ ], or other grouping symbols such as square roots or fraction bars, starting with the innermost set.
2. Evaluate any expressions with exponents.
3. Multiply or divide in order from left to right.
4. Add or subtract in order from left to right.

3.6

Memorize

Helpful Hint

Remember:

Perimeter measures the distance around a figure. It is measured in **units.**

Perimeter

Area measures the amount of surface of a figure. It is measured in **square units.**

Area

Volume measures the amount of space enclosed by a region. It is measured in **cubic units.**

Volume

Your Name MDE 10 quiz 3 write each problem. No calculator. Show calculations.
If mixed number or improper fraction, write both ways.

1. Add $\frac{4}{15} + \frac{7}{5} = \frac{4}{15} + \left(\frac{7}{5}\right)\left(\frac{3}{3}\right) = \frac{4}{15} + \frac{21}{15} = \frac{25}{15} = \boxed{\frac{5}{3} = 1\frac{2}{3}}$

is 5 is 15/13 15+15 is 3

2. Subtract $10\frac{3}{4} - 8\frac{1}{4} = (10-8) + \left(\frac{3}{4} - \frac{1}{4}\right) = 2 + \frac{3-1}{4}$

$= 2 + \frac{2}{4} = 2\frac{2}{4} = 2\frac{1}{2} = \frac{5}{2}$

3. Multiply $\left(\frac{6}{7}\right)\left(\frac{8}{3}\right) = \frac{(2)(3)(8)}{(7)(3)} = \frac{16}{7} = 2\frac{2}{7}$

4. Divide $\frac{1}{9} \div \frac{1}{9} = 1$

5. Reduce $\frac{384}{16}$ to lowest terms

$= \frac{(2)(192)}{(2)(8)} = \frac{192}{8} = \frac{2(96)}{2(4)} = \frac{48}{2} = 24$

$$\begin{array}{r} 96 \\ 2\overline{)192} \\ 18 \\ \hline 12 \\ 12 \\ \hline 0 \end{array} \qquad \begin{array}{r} 192 \\ 2\overline{)384} \\ 2 \\ \hline 18 \\ 18 \\ \hline 4 \\ 4 \\ \hline 0 \end{array}$$

6. What is an improper fraction? Answer in a sentence.

An improper fraction is a fraction in which the numerator is greater than or equal to the denominator

7. Is $\frac{5}{8} < \frac{4}{7}$?

why or why not?

$\frac{5}{8} = \left(\frac{5}{8}\right)\left(\frac{7}{7}\right) = \frac{35}{56}$

$\frac{4}{7} = \left(\frac{4}{7}\right)\left(\frac{8}{8}\right) = \frac{32}{56}$

$32 < 35 \Rightarrow \frac{4}{7} < \frac{5}{8}$

8. which number is bigger

3 or 100?

Trick question?

size

Trick question?

The numeral 3 is larger in size than the numeral 100.

However, $100 > 3$ on the number line