

Course: MFM2P Gr. 10 AppliedLesson: 1-1Unit: Measurement Systems and Similar TrianglesTopic: Prerequisite Skills

✚ **Start-up:** handout course outline

✚ **Note:** Pre-requisite Skills

**Adding and Subtracting Fractions:** must have common denominators

a)

$$\begin{aligned} \frac{2}{3} + \frac{3}{5} &= \\ &= \frac{2 \times 5}{3 \times 5} + \frac{3 \times 3}{5 \times 3} \\ &= \frac{10}{15} + \frac{9}{15} \\ &= \frac{19}{15} \text{ or } 1\frac{4}{15} \end{aligned}$$

b)

$$\begin{aligned} 2\frac{2}{5} - 1\frac{1}{2} &= \\ &= \frac{12}{5} - \frac{3}{2} \\ &= \frac{12 \times 2}{5 \times 2} - \frac{3 \times 5}{2 \times 5} \\ &= \frac{24}{10} - \frac{15}{10} \\ &= \frac{9}{10} \end{aligned}$$

**Multiplying Fractions:** multiply straight across top and bottom

a)

$$\begin{aligned} \frac{3}{4} \times \frac{12}{15} &= \\ &= \frac{3 \times 12}{4 \times 15} \\ &= \frac{36}{60} \text{ and reduce} \\ &= \frac{36 \div 12}{60 \div 12} \\ &= \frac{3}{5} \end{aligned}$$

b)

$$\begin{aligned} 2\frac{1}{3} \times 1\frac{2}{5} &= \\ &= \frac{7}{3} \times \frac{7}{5} \\ &= \frac{7 \times 7}{3 \times 5} \\ &= \frac{49}{15} \text{ or } 3\frac{4}{15} \end{aligned}$$

**Dividing Fractions: multiply by the reciprocal**

a)

$$\begin{aligned} \frac{3}{4} \div \frac{1}{8} &= \\ &= \frac{3}{4} \times \frac{8}{1} \\ &= \frac{3 \times 8}{4 \times 1} \\ &= \frac{24}{4} \text{ and reduce} \\ &= 6 \end{aligned}$$

**Solving Proportions: rewrite the proportion as equivalent fractions and use cross-multiplication to solve**

a)

$$\begin{aligned} 3:5 = 6:x \text{ becomes} \\ \frac{3}{5} = \frac{6}{x} \text{ and cross-multiply} \\ 30 = 3x \\ \frac{30}{3} = \frac{3x}{3} \\ 10 = x \end{aligned}$$

b)

$$\begin{aligned} 1:2 : x = 3 : y : 15 \\ \frac{1}{3} = \frac{2}{y} = \frac{x}{15} \text{ solve each pair individually} \\ \frac{1}{3} = \frac{2}{y} \text{ and } \frac{1}{3} = \frac{x}{15} \text{ then cross-multiply} \\ 1y = 6 \qquad 15 = 3x \\ y = 6 \qquad x = 5 \end{aligned}$$

**Angle Properties:**

- a) **Angles in a triangle always add to 180**
- b) **Base angles in an isosceles are equal in measure**
- c) **Opposite angles are equal in measure**
- d) **Supplementary angles add to 180**
- e) **Complimentary angles add to 90**
- f) **When given parallel lines and a transversal:**
  - i) **the alternate angles are equal (Z-pattern)**
  - ii) **the corresponding angles are equal (F-pattern)**
  - iii) **interior angles are supplementary (C-pattern)**

✚ homework: Lesson 1 - 1

**Lesson 1 – 1: prerequisite skills****1. Order the fractions in each set from smallest to largest.**

a)  $\frac{3}{8}, \frac{5}{32}, \frac{1}{2}, \frac{3}{4}$        $\frac{3}{8} = \frac{\quad}{32}, \frac{5}{32} = \frac{\quad}{32}, \frac{1}{2} = \frac{\quad}{32}, \frac{3}{4} = \frac{\quad}{32}$

b)  $\frac{3}{2}, \frac{5}{16}, \frac{1}{4}, \frac{7}{8}, \frac{11}{32}$

c)  $\frac{9}{16}, \frac{5}{64}, \frac{3}{8}$

**2. Perform the operation indicated. All answers must be fully simplified.**

a)  $\frac{3}{8} + \frac{3}{16} =$

b)  $\frac{5}{32} + \frac{3}{64} + \frac{5}{8} =$

c)  $\frac{5}{16} - \frac{3}{8} =$

d)  $\frac{3}{4} \times \frac{1}{2} =$

e)  $\frac{3}{4} \times \frac{1}{8} =$

f)  $3\frac{1}{4} + 5\frac{1}{2} =$

g)  $\frac{3}{16} \times 2 =$

h)  $26 \div \frac{1}{2} =$

i)  $\frac{1}{2} - \frac{1}{3} =$

**3. Write each ratio in simplest form.**

a) 54:18

b) 36:9

c) 24:36:72

**4. Solve for the unknown.**

a)  $\frac{x}{3} = \frac{1}{5}$

b)  $x:9 = 5:3$

c)  $4:1 = p:3$

d)  $1.5:x = 9:15$

e)  $\frac{3}{7} = \frac{6}{x}$

f)  $8:6:10 = 12:p:q$

**5. Reduce each of the following fractions to lowest terms.**

a)  $\frac{16}{32} =$

b)  $\frac{144}{64} =$

c)  $\frac{50}{125} =$

d)  $\frac{63}{108} =$

e)  $\frac{44}{121} =$

f)  $\frac{52}{169} =$

**6. Find the measure of the unknown angle.**

