Math 01, Extra Credit Homework 9 on Sections 5.1 - 5.5, 6.1 - 6.2
Hand in by Wed, May 4 at the start of class.

Write all your working out and answers on a separate sheet. It is very important that you show clearly any work you had to do to get the answer. These first ten questions are 2 points each and **the answers are on page 2**.

(1) Simplify the ratios: **(a)** 20 to 15 **(b)** 100 minutes to 3 hours

(2) Simplify the ratio: $1\frac{5}{8}$ to $3\frac{1}{4}$

(3) Solve the proportion: $\frac{22}{x} = \frac{2}{5}$

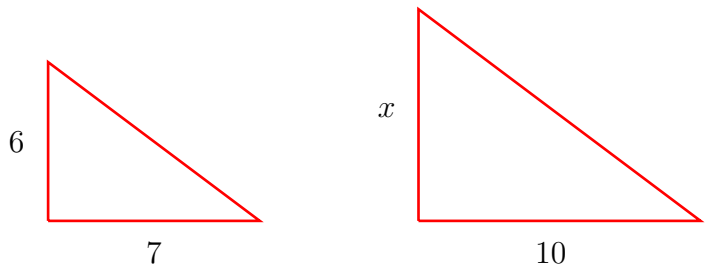
(4) 12 is 40% of what number?

(5) 90 is what percent of 200?

(6) Maya used 7 gallons of gas to drive 240 miles. How far can she drive with 3 gallons? (Write the answer as a mixed number of miles.)

(7) In a sample of 600 bottles, 11 were found to be leaking. Approximately how many bottles would you expect to be leaking in a sample of $20,000$ bottles? (Write the answer as a mixed number or a decimal rounded to the nearest tenth.)

(8) For these similar triangles, $\triangle ABC$ and $\triangle DEF$, find the length of the missing side.



(9) Evaluate $\frac{x-y}{x+y}$ for **(a)** $x = 3, y = 2$ **(b)** $x = 2, y = -4$

(10) If a thermometer reads $12°C$ (degrees Celsius), find the temperature in $°F$ (degrees Fahrenheit) as a decimal. Use the formula $F = \frac{9}{5}C + 32$.

As usual, the next eight questions are 2 points each. Show clearly all your working out and reasoning.

(11) Simplify the ratios: **(a)** 18 to 21 **(b)** 4 dollars to 80 cents

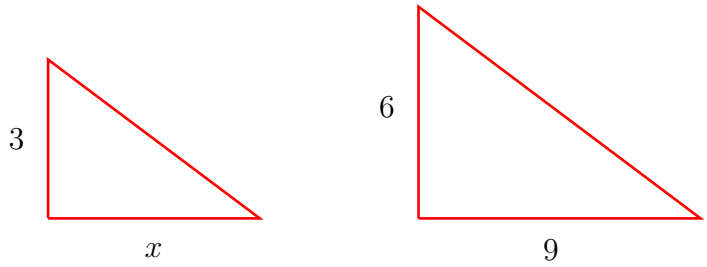
(12) Simplify the ratio: $4\frac{1}{5}$ to $10\frac{1}{2}$

(13) Solve the proportion: $\frac{x}{16} = \frac{3}{5}$

(14) What percent of 250 is 5?

(15) On a map, 2 inches represents 25 miles. If two towns are 5 inches apart on the map, what is the real distance between them?

(16) For these similar triangles, $\triangle ABC$ and $\triangle DEF$, find the length of the missing side.



(17) Evaluate $3a^2 - 2b + a - 1$ for **(a)** $a = 0, b = 1$ **(b)** $a = -4, b = 3$

(18) If a thermometer reads $-5°C$ (degrees Celsius), find the temperature in $°F$ (degrees Fahrenheit). Use the formula $F = \frac{9}{5}C + 32$.

Answers to questions (1)-(10):

(1) **(a)** $4 : 3$ **(b)** $5 : 9$

(2) $1 : 2$

(3) $x = 55$

(4) 12 is 40% of 30

(5) 90 is 45% of 200

(6) She can drive $102\frac{6}{7}$ miles.

(7) You would expect $366\frac{2}{3}$ bottles to be leaking (or 366.7 rounded to nearest tenth).

(8) $x = 8\frac{4}{7}$

(9) **(a)** $\frac{1}{5}$ **(b)** -3

(10) The temperature is $53.6°F$.