MATH 5: HOMEWORK 5,
October 25, 2020

1. List all sets a number belongs to: -17, 0, 15, $-7\frac{13}{14}$

2. Compute:

$$1 + 2 \cdot (-3 + (-13) - 7) = \qquad \frac{1}{(-3+(-13)-7)} =$$

3. Find reciprocal (invers) element for the following numbers. If $a \in$ Q, then reciprocal of a
   $r(a)$ is such that $a \cdot r(a) = 1$. E.g. reciprocal of $\frac{3}{17}$ is $\frac{17}{3}$. Indeed $\frac{3}{17} \cdot \frac{17}{3} = 1$

$$r\left(\frac{13}{7}\right) = \qquad r\left(\frac{1}{7}\right) = \qquad r(3) = \qquad r\left(1\frac{6}{7}\right) =$$

$$r\left(3\frac{1}{5}\right) = \qquad r(0.1) = \qquad r(1.1) = \qquad r\left(\frac{a}{b}\right) =$$

4. Solve equations (**remember** for dividing/multiplying fractions they need to **be improper**):

$$3x = 5 \qquad\qquad 5x = 3 \qquad\qquad 15x = 5$$

$$\frac{3}{5}x = \frac{10}{55} \qquad\qquad \frac{2}{11}x = \frac{11}{2} \qquad\qquad \frac{2}{11}x = 5\frac{1}{2}$$

$$\frac{3}{4}(x+8) = 10 \qquad\qquad \frac{1}{2}(x+1) = x - 3 \qquad\qquad \frac{1}{2}x + \frac{1}{3}x = x - \frac{1}{12}$$

5. Using commutative law for multiplication (a·b=b·a) recognize similar terms and simplify.
   For example (e.g.) $ac^2b = bac^2 = c^2ab$.

$$3a(b + ac) - c(3a^2 - 2) + 2ab =$$

$$(a + 1)^2 = (a + 1)(a + 1) = a(a + 1) + 1(a + 1) =$$

$$2a(2a + 3) + 3(2a + 3) =$$

6. Pirate captain John can drink a barrel of rum in 14 days. If he drinks together with pirate
   Bill, they will finish the barrel in 10 days. How long would it take Bill to drink the barrel
   of rum alone?

7. A truck can cover distance between two cities in 10 hours. A fast car, which goes 10
   miles per hour faster than the truck, can cover the same distance in 8 hours. What is the
   distance? *[Hint: if the speed of the truck is x mph, then the distance is equal to 10x miles.
   On the other hand....]*

8. Solve the following puzzle (different letters stand for different digits):

$$\begin{array}{r} THIS \\ + IS \\ \hline EASY \end{array}$$