

Topic 4.5 Practice Problems

1. Solve each equation. Show all work.

(a) $x - \frac{2}{4} = 16\frac{1}{3}$

(b) $\frac{y}{4} = \frac{13}{8}$

(c) $15.292 = x + 13.42$

(d) $\frac{t}{4.4} = 19.9$

(e) $2.5x = 30.20$

(f) $\frac{x}{\frac{3}{4}} = \frac{1}{2}$

(g) $\frac{1}{2}x - \frac{3}{4} = \frac{1}{3}$

(h) $\frac{x}{0.5} - 24.35 = 20.65$

2. Consider an equation of the form $xm = 2\frac{3}{4}$, where x is a constant and m is the variable (the solution).

- (a) Which value of x would produce the greatest solution for m ?

$$\frac{5}{8}, \quad \frac{5}{9}, \quad \frac{5}{10}, \quad \frac{5}{11}$$

- (b) What do you notice about x and the size of the solution m ? (When x gets smaller, does m get larger? Or the opposite?)

- (c) Give a value of x that would produce a solution larger than the one in part (a).

- (d) Consider the equation $\frac{5}{6}b = 25$. Without solving, will b be greater than 25 or less than 25? Explain how you can tell.

3. There are 36 inches in a yard. On a mini-train track, one loop is 24 inches. If the train travels 15 yards, how many loops does it complete? Include any unfinished loop as a fraction or mixed number (for example, $22\frac{1}{3}$ loops).

4. Write four equations using the variable x such that the solution is $15\frac{1}{3}$. Each equation must use a different operation: $+$, $-$, \times , and \div . Verify that $x = 15\frac{1}{3}$ satisfies each equation.

5. A clock has area approximately 270 square units. One revolution means traveling around the full circle one time.

- (a) The clock has 12 equal sections labeled 1 through 12. How much area corresponds to each number section?
- (b) Starting at 12 o'clock, if you travel $\frac{1}{4}$ of the circle, what number will you be at?
- (c) Starting at 12 o'clock, if you move to 5 o'clock, how much area did you cover?
- (d) Starting at 12 o'clock, if you move to 7 o'clock and 30 minutes, how much area did you cover?
- (e) Starting at 12 o'clock, you make 3 full revolutions and then stop at 5 o'clock. How many revolutions is that *in total*?
- (f) Starting at 12 o'clock, if you complete $2\frac{1}{3}$ revolutions, what time will you be at?
- (g) The minute hand moves 60 times faster than the hour hand. Starting at 12 o'clock, if the hour hand is at 3 o'clock and 30 minutes:
 - i. Which number is the minute hand pointing to?
 - ii. How many revolutions has the minute hand completed?