

Graded Homework 8

Solve for x if: (see section 7.6)

1. $\frac{x}{2} = \frac{3}{4}$

2. $\frac{12}{7} = \frac{2}{x}$

3. $\frac{x+2}{3x} = \frac{4}{3}$

4. $\frac{x}{2} + \frac{x}{4} = 3$

5. $\frac{2x}{3} + \frac{x}{3} = 6$

6. $\frac{1}{x-2} + \frac{1}{x+2} = \frac{6}{x^2-4}$

7. $\frac{2}{x} - \frac{6}{2x-1} = -1$

8. If $= \frac{2k}{v^2}$, solve for k.

9. If $\frac{1}{T} = \frac{r}{R-r}$, solve for R.

(see section 7.7 for the problems below)

10. It takes John 4 hours to shovel snow from a driveway, but Helen can shovel the same driveway in 3 hours. How long, working together, would it take them to shovel the driveway?
11. A boat can travel 114 miles upstream in the same amount of time that it can travel 186 miles downstream. If the speed of the current is 6 miles per hour, what is the speed of the boat without a current?
12. Find a number n which makes $\frac{2+n}{8-n} = 1$.
13. If two CD's can record 90 minutes of music, how many minutes of music can 5 CD's record?
14. If a gas pump fills a 30 gallon tank in 8 minutes, how long would it take to fill a 17 gallon tank?
15. Eight inches of heavy, wet snow are equivalent to an inch of rain. Estimate how many inches of rain would be in 11 inches of heavy, wet snow.
16. The cost of carpet for a rectangular room varies jointly as its width and length.
(e.g. $\$ = klw$) If a room 11 feet wide and 14 feet long costs \$539 to carpet,
 - a. Find the value for k, and what does k represent?
 - b. What is the cost to carpet a room 17 by 19 feet with the same type of carpet?

17. It takes one person 8 days to paint a building. Would the time, T , needed to paint the building vary directly or inversely with the number of painters, N , working on the job together? That is, is $T = 8N$ or $T = 8/N$?
18. Would the food bill for a family vary directly or inversely with regard to the number of people in the family.