s fast as his daughter Georgia.
Working together, Tim and
ow many hours would it take

ced rate

our)

$+\frac{5000}{3x}$ and $y_2 = 1250$ in a
, and Ymax = 2000. Then
tersections of the two graphs.

$\frac{5000}{3x} - 1250$. Use the
where the function changes

about 16 hours.

r friend Paco. Together,
would it take each of them

his son Phillip. Together
it take each of them

Word Problem Practice.

ALG2 7.0

3. $\frac{4}{3x+3} = \frac{12}{x^2-1}$

6. $\frac{4}{2x-3} = \frac{x}{5}$

9. $\frac{2}{3x-5} = \frac{4}{x-15}$

Example 2 (page 531)

Solve each equation. Check each solution.

10. $\frac{1}{4} - x = \frac{x}{8}$ **11.** $\frac{y}{5} + \frac{y}{2} = 7$ **12.** $\frac{2x}{3} - \frac{1}{2} = \frac{2x+5}{6}$

13. $\frac{3x-2}{12} - \frac{1}{6} = \frac{1}{6}$ **14.** $\frac{1}{x} + \frac{x}{2} = \frac{x+4}{2x}$ **15.** $\frac{11}{3x} - \frac{1}{3} = \frac{-4}{x^2}$

16. $\frac{3}{2x} - \frac{5}{3x} = 2$ **17.** $\frac{5x}{4} - \frac{3}{x} = \frac{1}{4}$ **18.** $\frac{2}{y} + \frac{1}{2} = \frac{5}{2y}$

19. $x + \frac{6}{x} = -5$ **20.** $\frac{1}{4x} - \frac{3}{4} = \frac{7}{x}$ **21.** $\frac{5}{2x} - \frac{2}{3} = \frac{1}{x} + \frac{5}{6}$

Examples 3 and 4 (pages 531 and 532)

22. Carlos can travel 40 mi on his motorbike in the same time it takes Paul to travel 15 mi on his bicycle. If Paul rides his bike 20 mi/h slower than Carlos rides his motorbike, find the speed for each bike.

23. A passenger train travels 392 mi in the same time that it takes a freight train to travel 322 mi. If the passenger train travels 20 mi/h faster than the freight train, find the speed of each train.

24. Shelley can paint a fence in 8 hours. Karen can do it in 4 hours. How long will it take them to do the job if they work together?

25. One pump can fill a tank with oil in 4 hours. A second pump can fill the same tank in 3 hours. If both pumps are used at the same time, how long will they take to fill the tank?

B Apply Your Skills

Solve each equation for the given variable.

26. $m = \frac{2E}{V^2}; E$ **27.** $\frac{c}{E} - \frac{1}{mc} = 0; E$ **28.** $\frac{m}{F} = \frac{1}{a}; F$

29. $\frac{1}{c} - \frac{c}{a^2 - b^2} = 0; c$ **30.** $\frac{\ell}{T^2} = \frac{g}{4\pi^2}; T$ **31.** $\frac{q}{m} = \frac{2V}{B^2 r^2}; B$

GO for Help

For a guide to solving Exercise 32, see page 538.

32. Anita and Fran have volunteered to contact every member of their organization by phone to inform them of an upcoming event. Fran can complete the calls in six days if she works alone. Anita can complete them in four days. How long will they take to complete the calls working together?

33. Multiple Choice On the first four tests of the term your average is 84%. You think you can score 96% on each of the remaining tests. How many consecutive test scores of 96% would you need to bring your average up to 90% for the term?

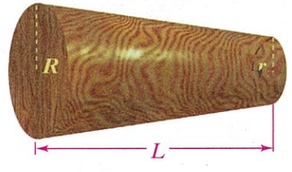
(A) 1 (B) 2 (C) 3 (D) 4

34. You are planning a school field trip to a local theater. It costs \$60 to rent the bus. Each theater ticket costs \$5.50.

a. Write a function $c(x)$ to represent the cost per student if x students sign up.

b. How many students must sign up if the cost is to be no more than \$10 per student?

35. Woodworking A tapered cylinder is made by decreasing the radius of a rod continuously as you move from one end to the other. The rate at which it tapers is the taper per foot. You can calculate the taper per foot using the formula $T = \frac{24(R - r)}{L}$. The lengths R, r, and L are measured in inches.



a. Solve this equation for L.

b. Find L if $R = 4$ in.; $r = 3$ in.; and $T = 0.75, 0.85$, and 0.95.

Homework Video Tutor

Visit: PHSchool.com
Web Code: bbe-0906