NCLS Math 7 : 3/4/2012 Name: _____

SOLVING PROPORTIONS **Solve the proportion. Check for extraneous solutions.**

17. $\frac{16}{4} = \frac{12}{x}$ **18.** $\frac{4}{2x} = \frac{7}{3}$ **19.** $\frac{5}{8} = \frac{c}{9}$

20. $\frac{x}{3} = \frac{2}{5}$ **21.** $\frac{5}{3c} = \frac{2}{3}$ **22.** $\frac{24}{5} = \frac{9}{y+2}$

23. $\frac{6}{3} = \frac{x+8}{-1}$ **24.** $\frac{r+4}{3} = \frac{r}{5}$ **25.** $\frac{w+4}{2w} = \frac{-5}{6}$

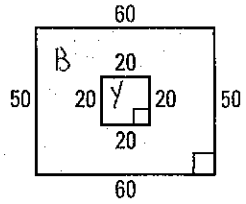
26. $\frac{5}{2y} = \frac{7}{y-3}$ **27.** $\frac{x+6}{3} = \frac{x-5}{2}$ **28.** $\frac{x-2}{4} = \frac{x+10}{10}$

29. $\frac{8}{x+2} = \frac{3}{x-1}$ **30.** $\frac{x-3}{18} = \frac{3}{x}$ **31.** $\frac{-2}{a-7} = \frac{a}{5}$

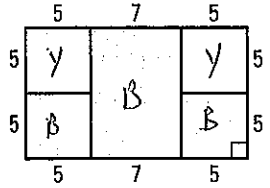
32. $\frac{u}{3} = \frac{1}{2u-1}$ **33.** $\frac{d}{d+4} = \frac{d-2}{d}$ **34.** $\frac{3x}{4x-1} = \frac{1}{x}$

GEOMETRY CONNECTION **In Exercises 31 and 32, what percent of the region is shaded blue? What percent is shaded yellow? All figures are rectangles.**

31.



32.

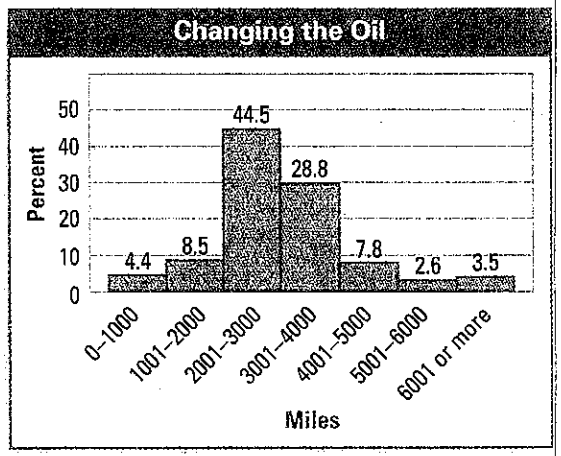


REAL CHANGE **The histogram shows how 861 people answered a survey question about when they usually change the oil in their cars.**

33. How many of the people change their oil between 3001 and 4000 miles?

34. How many of the people change their oil between 4001 and 6000 miles?

35. If you surveyed 2500 people, about how many people do you expect to answer "2001 to 3000 miles?"



▶ Source: Maritz Marketing Research Inc.

SOLVING PERCENT PROBLEMS **Solve the percent problem.**

13. What number is 25% of 80?

14. 85% of 300 is what number?

15. 18 is what percent of 60?

16. 52 is 12.5% of what number?

17. 14% of 220 feet is what distance?

18. How much money is 35% of $750?

19. 42 feet is 50% of what length?

20. What distance is 24% of 710 miles?

21. 16% of what number is 8?

22. $4 is 2.5% of what amount?

23. 33 grams is 22% of what weight?

24. 55 years is what percent of 20 years?

25. How much is 8.2% of 800 tons?

26. 9 people is what percent of 60 people?

DIRECT VARIATION **The variables *x* and *y* vary directly. Use the given values to write an equation that relates *x* and *y*.**

12. $x = 3, y = 9$ **13.** $x = 2, y = 8$ **14.** $x = 18, y = 6$

15. $x = 8, y = 24$ **16.** $x = 36, y = 12$ **17.** $x = 27, y = 3$

18. $x = 24, y = 16$ **19.** $x = 45, y = 81$ **20.** $x = 54, y = 27$

INVERSE VARIATION **The variables *x* and *y* vary inversely. Use the given values to write an equation that relates *x* and *y*.**

21. $x = 2, y = 5$ **22.** $x = 3, y = 7$ **23.** $x = 16, y = 1$

24. $x = 11, y = 2$ **25.** $x = \frac{1}{2}, y = 8$ **26.** $x = \frac{13}{5}, y = 5$

27. $x = 12, y = \frac{3}{4}$ **28.** $x = 5, y = \frac{1}{3}$ **29.** $x = 30, y = 7.5$

30. $x = 1.5, y = 50$ **31.** $x = 45, y = \frac{3}{5}$ **32.** $x = 10.5, y = 7$

DIRECT VS. INVERSE VARIATION **Make a table of values for $x = 1, 2, 3$, and 4. Use the table to sketch a graph. Decide whether *x* and *y* vary *directly* or *inversely*.**

33. $y = \frac{4}{x}$ **34.** $y = \frac{3}{2x}$ **35.** $y = 3x$ **36.** $y = \frac{6}{x}$