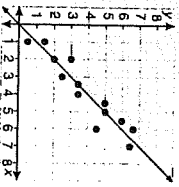


Cumulative Test

16A

1. (67) Karen started walking at 3.5 miles per hour. After she walked 2 miles, her friend Ned started walking along the same route at a pace of 3.5 miles per hour. If they continue to walk at the same rate, will Ned ever catch up to Karen? Explain.



2. (71) State whether there is a positive correlation, a negative correlation, or no correlation between the data values in the scatter plot shown below.

6. (66) Write an equation for a direct variation that includes the point (2, 10).

7. (68) Suppose y varies jointly with x and z . Find y when $x = 3$ and $z = 5$, given that $y = 72$ when $x = 6$ and $z = 4$.

Factor the trinomials in problems 8–10.

8. (79) $x^4 + 7x^3 + 12x^2$

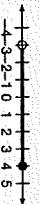
9. (72) $x^2 + 8x + 12$

10. (73) $3x^2 - x - 2$

- Simplify problems 3–4.
3. (69) $7\sqrt{xy} - 5\sqrt{xy}$
4. (70) $\sqrt{32}\sqrt{2}$
5. (60) Find the product $(a + 4)(a - 4)$.

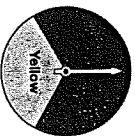
11. (70) A car salesperson earns a 12.5% commission on each car sold. What price must a car sell for in order for the salesperson to earn a commission of at least \$2000?

12. (72) Write a compound inequality that describes the graph below.



13. (76) Identify the asymptotes for the equation $y = \frac{3}{x - 5}$.

14. (60) A student spins the spinner below and flips a fair coin. Make a table to show the possible outcomes in this experiment and find the theoretical probability of each outcome.



15. (60) Find the probability of rolling a sum of 3 or a sum of 11 on two number cubes, each numbered 1 to 6.

Cumulative Test

16A

continued

16. (74) Solve the equation $3|x| - 15 = 0$.

17. (62) Kaitlin is selling T-shirts. She sold 2 for \$16 and 3 for \$23. What will Kaitlin charge for 5 T-shirts if she keeps selling T-shirts at the same rate?

18. (42) What number is 140% of 35?

Solve the inequalities in problems 19–20 and graph them on a number line.

19. (77) $6x - 5 \leq -23$

20. (69) $x + 3 > -1$

~~3.5h + 2 = 3.5h~~
~~-3.5h~~
 $a \neq 0$
 No, she will never catch up because he's going the same speed.

POSITIVE CORRELATION

$7\sqrt{xy} - 5\sqrt{xy} = 2\sqrt{xy}$

$\sqrt{3a} \cdot \sqrt{2} = \sqrt{6a} = 8$

$(a+4)(a-4) = a^2 - 4a + 4a - 16 = a^2 - 16$

6. $y = k \cdot x$
 $10 = k \cdot 2$
 $5 = k$
 $y = 5x$

7. $y = x \cdot 2 \cdot k$
 $7a = 6 \cdot 4 \cdot k$
 $\frac{7a}{24} = \frac{24k}{24}$
 $3 = k$
 $y = x \cdot 2 \cdot k$
 $y = 3 \cdot 5 \cdot 3$
 $y = 45$

8. $x^4 + 7x^3 + 12x^2$
 $x^2(x^2 + 7x + 12)$
 $x^2(x+4)(x+3)$

9. $x^2 + 8x + 12$
 $(x+6)(x+2)$

10. $3x^2 - x - 2$
 $(3x-2)(x+1)$
 $(3x-1)(x+2) = -1x + 6x = 5x$
 $(3x+2)(x-1)$

11. $\frac{125C}{125} = \frac{3000}{125}$
 $C = \$16,000$

12. $-3 < x \leq 4$
 OR
 $x > -3$ and $x < 4$

13. $y = \frac{3}{x-5}$
 vertical asymptote: $x=5$
 horizontal asymptote: $y=0$
 (make equal zero)

	R	R	Y
H	RH	RH	YH
T	RT	RT	YT

Prob (RH) = $\frac{2}{6} = \frac{1}{3}$
 P(YH) = $\frac{1}{6}$
 P(RT) = $\frac{2}{6} = \frac{1}{3}$
 P(YT) = $\frac{1}{6}$

15. $\frac{1}{18} + \frac{1}{18} = \frac{2}{18} = \frac{1}{9}$

1	2	3	4	5	6
7	8	9	10	11	12

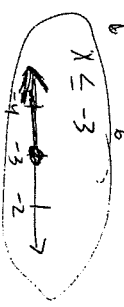
P(sum of 3) = $\frac{2}{36} = \frac{1}{18}$
 P(sum of 11) = $\frac{2}{36} = \frac{1}{18}$

16. $3 \cdot |x| = 15$
 $|x| = 5$
 $x = 5$ OR $x = -5$
 $\frac{15}{3} = 5$ OR $\frac{15}{3} = -5$

17. $(2, 16)$
 $(3, 123)$
 $y_2 - y_1 = \frac{23-16}{3-2} = 7$
 $y = mx + b$
 $16 = 7 \cdot 2 + b$
 $16 = 14 + b$
 $2 = b$
 $y = 7x + 2$

18. 140% of 35?
 $\frac{140}{100} = \frac{15}{100}$
 $\frac{140}{100} = \frac{x}{35}$
 $490 = 100x$
 $49 = x$

19. $6x - 23 \leq -23$
 $6x \leq -18$
 $x \leq -3$



20. $x + 3 > -1$
 $x > -4$

