

Cumulative Test

5A

Solve problems 1–3.

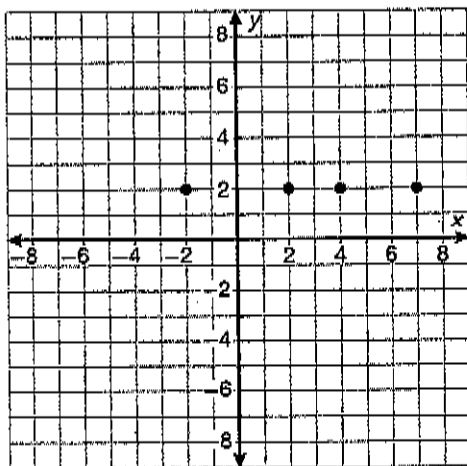
1. (7) $15n - 8 = 7n + 24$

2. (23) $x^2 + 2x - 35 = 0$

3. (24)
$$\begin{cases} \frac{3}{7}x + \frac{2}{5}y = 14 \\ \frac{x}{2} + 3y = 67 \end{cases}$$

4. (15) A video rental store charges nonmembers \$5 to rent a video. Members pay \$15 per month and \$2 for each video they rent. After how many rentals will the total cost be the same for members and nonmembers?

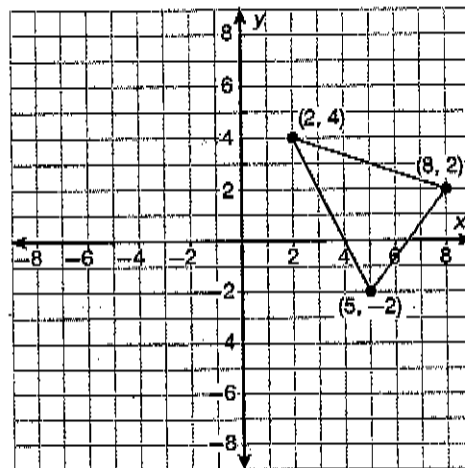
5. (22) Determine whether the graph is continuous, discontinuous, and/or discrete. Determine whether it is a function or a relation. Determine the domain and range of the function.



6. (1) Find the multiplicative inverse of $\frac{8r}{11s}$.

7. (11) Subtract $(7x^2 - 8x + 9) - (x^3 - 2x + 8)$.

8. (14) Find the area of the triangle below.



9. (21) This table shows the increase of the populations of the cities of Martin and Taylor from 2005 to 2006. If the populations continue to grow at these constant rates, in about how many years will the two cities have the same population?

City	2005	2006	Increase
Martin	860,417	865,327	4910
Taylor	824,667	836,452	11,785

10. (9) Find AB if $A = \begin{bmatrix} 3 & -4 \\ 4 & 3 \\ 2 & 5 \end{bmatrix}$ and

$$B = \begin{bmatrix} 2 & -2 \\ 1 & 3 \end{bmatrix}.$$

11. (18) Simplify using correct significant digits.

$$6.87 \text{ km} + 4.475 \text{ km} + 0.9 \text{ km}$$

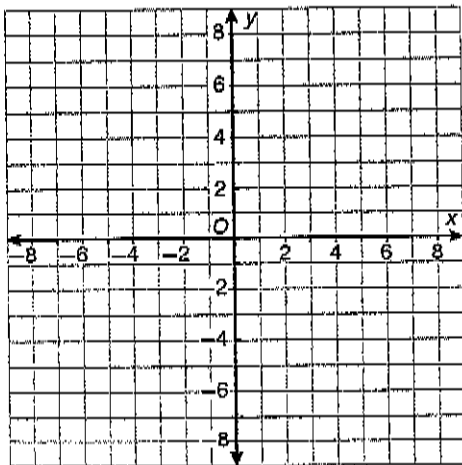
12. (17) Solve $|4x + 16| = 8x$. Check for extraneous solutions.

13. (20) Find $(f \circ g)(5)$ if $f(x) = x + 7$;
 $D = \{\text{Integers}\}$; and $g(x) = x + 4$;
 $D = \{\text{Positive whole numbers}\}$.

14. (12) Find the constant of variation for this data set.

x	3	4	5	6
y	20	15	12	10

15. (13) Identify the slope and y-intercept of the line with the equation $y = -\frac{1}{4}x + 3$.
 Graph the line.



16. (4) Identify the domain and range.

x	4	3	1	5
y	2	9	4	2

17. (19) Multiply $(4x + 3y)^2$.

18. (Inv. 1) Consider the following sentence.
 "If it is Saturday or Sunday, then it is the weekend." Write a logic statement for the sentence. Be sure to identify p , q , and r .

19. (25) Find the range and standard deviation for the following set of data.

2, 4, 6, 8, 10

20. (16) Use Cramer's rule to solve

$$\begin{cases} 4x + 3y = -1 \\ 2x + 5y = 3 \end{cases}$$