

# Cumulative Test 10A

**Simplify problems 1–2.**

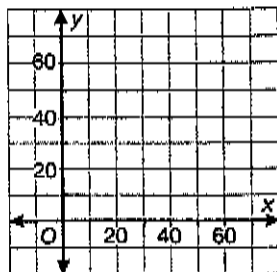
1. <sup>(48)</sup>  $\frac{\frac{3}{a} + 4}{6 - \frac{7}{b}}$

2. <sup>(44)</sup>  $\frac{5 + \sqrt{3}}{7 - 2\sqrt{3}}$

3. <sup>(31)</sup> Multiply  $\frac{x + 3}{x^2 - 5x} \cdot (3x^2 - 17x + 10)$ .

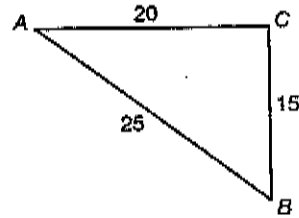
4. <sup>(20)</sup> Find  $(fg)(-5)$  where  $f(x) = x + 3$ ;  
 $D = \{\text{Reals}\}$ , and  $g(x) = x - 7$ ;  
 $D = \{\text{Positive integers}\}$ .

5. <sup>(43)</sup> Tickets to a concert cost \$25 for lower-level seats and \$10 for upper-level seats. A company plans to buy up to 30 tickets for employees and spend up to \$500. Write and graph a system of linear inequalities to represent all the possible combinations of lower-level and upper-level tickets the company can buy.



6. <sup>(39)</sup> Determine whether the point  $(4, 8)$  is a solution of the inequality  $y > -3x + 7$ .

7. <sup>(46)</sup> Find the value of the sine, cosine, and tangent of  $\angle A$ .



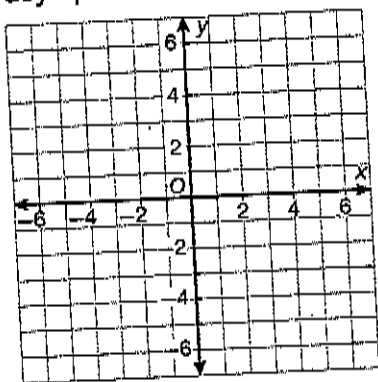
8. <sup>(29)</sup> Solve the system of equations.

$$\begin{cases} x + y + z = 4 \\ 2x + 3y - z = 18 \\ 3x - y + 2z = -2 \end{cases}$$

9. <sup>(50)</sup> Find an equation for the inverse of  $y = 5x - 15$ .

10. <sup>(7)</sup> Solve  $9(r - 4) = 8(r + 12) - 5r$ .

11. (47) Graph  $y = \left(\frac{1}{3}\right)^x$ . Identify the domain, the asymptote, and the range.



12. (41) Find the value of  $k$  so that the distance between  $(k, 5)$  and  $(5, 9)$  is 5.

13. (24) Solve 
$$\begin{cases} \frac{2}{3}x = 2y \\ 12 + 6y = 4x \end{cases}$$

14. (36) What is the relationship between the graphs of  $y = -35x + 2$  and  $y = -35x - 2$ ?

15. (35) Write a quadratic function that has zeros  $-\frac{2}{3}$  and 5.

16. (49) Use the Binomial Theorem to expand  $(f + 3)^5$ .

17. (33) When Richard went on vacation, he took a yellow shirt, a green shirt, and a blue shirt. He also took a pair of brown shorts, a pair of beige shorts, and a pair of white shorts. How many different shirt and shorts combinations could Richard wear?

18. (11) Add.

$$(3x^3 - 5x^2 + 9x - 7) + (8 - 3x^2 - 5x)$$

19. (25) Paul recorded the following high temperatures, in degrees Celsius, each day for a week.

16, 18, 15, 20, 19, 22, 16

Calculate the mean, median, and mode for the temperature measurements.

20. (19) Multiply  $(a + 7)(4a^2 - 5a - 3)$ .