Test 20 **SHOW YOUR WORK** **Name:** _____

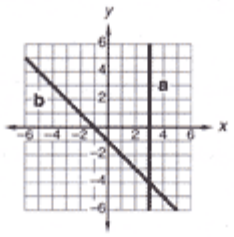
1. Three fourths of the tickets had been sold, and there were 420 tickets left. How many tickets were printed?

2. Find three consecutive odd integers such that the sum of the first and the third equals the sum of the second and 13.

3. Two dice are rolled. What is the probability that the sum of the top numbers on the dice is 10?

4. Justin's test grades were 78, 84, 74, and 80. What is his weighted average if the test grades are weighted 4, 5, 2, and 3, respectively?

5. Find the equations of lines (a) and (b).



6. Graph the following equation on a rectangular coordinate system: $4x + y - 4 = 0$

7. Simplify:

(a) $\dfrac{(8000 \times 10^8)(0.000006)}{(20{,}000)(0.00000000003)}$ (b) $\dfrac{(0.00005 \times 10^{12})(900{,}000 \times 10^{-8})}{(0.0003)(3{,}000{,}000)}$

Factor the following polynomials completely:

8. $49x^2 - 9y^2$

9. $9m^2n^2x^2 - 64p^2x^2$

10. $-x^3 - 4x^2 + 45x$

11. $3a^2 - 3a - 60$

Solve:

12. $\dfrac{m+5}{3} - \dfrac{3}{2} = \dfrac{2m-6}{4}$

13. $-[-2(x-5) - |-2|] = 3x - 4$

14. Given: $R_AT_A = R_BT_B$, $R_A = 15$, $R_B = 3$, $T_B = 6 - T_A$. Find T_A and T_B.

15. Use elimination to solve the following system of equations for x and y: $\begin{cases} 2x + 5y = 24 \\ x - 3y = -10 \end{cases}$

16. Add: $\dfrac{8}{xy} - \dfrac{2}{x^2} + \dfrac{3}{x+y}$

17. Simplify: $3\sqrt{45} + 5\sqrt{80} - 4\sqrt{20}$

18. Simplify. Write the answer as a simple fraction with all exponents positive.

$$\frac{x^{-1}y^2z - y^{-2}z}{3x - xy^{-2}}$$

19. (a) $9\sqrt{5} \in$ {What subsets of the real numbers}? (b) $\sqrt[3]{-125} \in$ {What subsets of the real numbers}?

20. Find the perimeter of this figure. All angles are right angles. Dimensions are in centimeters.