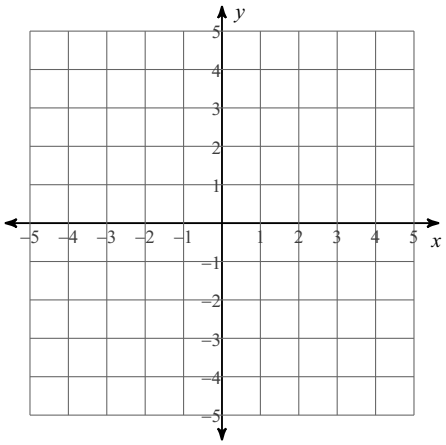
Semester 1 Exam Review

Date_____ Hour____

Solve each system by graphing.

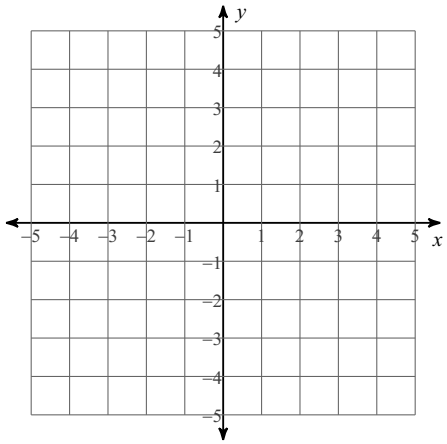
1) $y = -\frac{2}{3}x - 4$

$y = \frac{5}{3}x + 3$



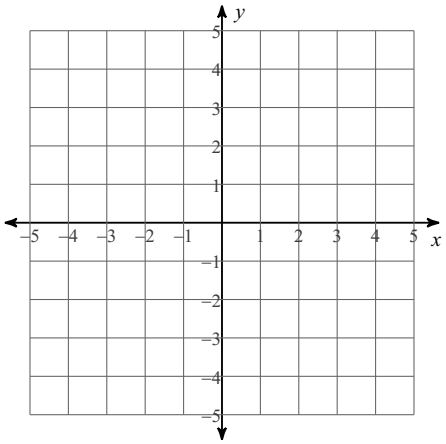
2) $y = 2x - 2$

$y = \frac{2}{3}x + 2$



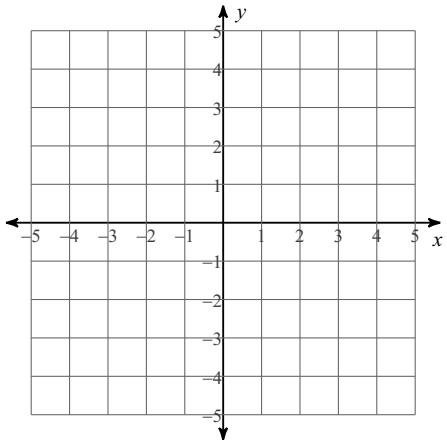
3) $x + 2y = -6$

$3x + 2y = -2$



4) $5x + 4y = -16$

$3x - 4y = -16$



Solve each system by substitution.

5) $-6x + 4y = -14$
$y = -4x - 9$

6) $y = -6x + 2$
$5x + 6y = -19$

7) $7x + 3y = 12$
$x + y = 0$

8) $x + 4y = -17$
$-5x + 6y = -19$

Solve each system by elimination.

9) $3x + 4y = 18$
$-x - 4y = -22$

10) $5 - 4x = y$
$-2y + 16x = -10$

11) $-7x + 7y = 7$
$-7x - 3y = -13$

12) $2x + 3y = -9$
$4x + 7y = -15$

13) $-8x + 6y = 12$
$3x - y = 8$

14) $-48x + 24y = 28$
$42x - 21y = -21$

15) $7x = -49y - 14$
$-10 - 35y - 5x = 0$

Solve each system using matrices. Remember to have everything lined up correctly.

16) $r - 2s + 3t = 17$
$-3r + 4s - t = -5$
$r - 3t = -19$

17) $5a - 2b + 2c = 9$
$5a + 5b - 2c = 10$
$4a + b + 4c = 27$

18) $-x + 2y = -8$
$-x - y + z = -6$
$-x - 4z = -2$

19) $-6x - 6y = 12$
$x - 2y + 3z = -11$
$3x + 3z = -15$

20) Shayna's school is selling tickets to a choral performance. On the first day of ticket sales the school sold 4 adult tickets and 1 student ticket for a total of $68. The school took in $192 on the second day by selling 8 adult tickets and 9 student tickets. What is the price each of one adult ticket and one student ticket?

21) Bill and Kali are selling wrapping paper for a school fundraiser. Customers can buy rolls of plain wrapping paper and rolls of shiny wrapping paper. Bill sold 7 rolls of plain wrapping paper and 2 rolls of shiny wrapping paper for a total of $47. Kali sold 3 rolls of plain wrapping paper and 11 rolls of shiny wrapping paper for a total of $81. What is the cost each of one roll of plain wrapping paper and one roll of shiny wrapping paper?

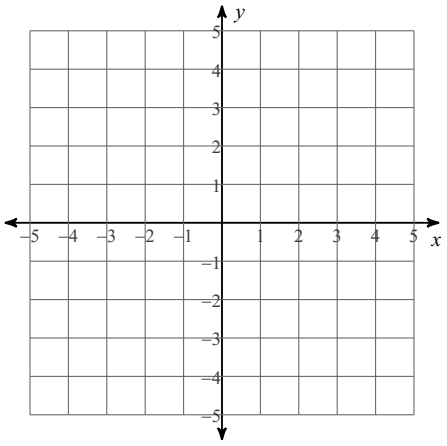
22) Jennifer and Lea each improved their yards by planting daylilies and shrubs. They bought their supplies from the same store. Jennifer spent $12 on 2 daylilies and 2 shrubs. Lea spent $54 on 3 daylilies and 12 shrubs. What is the cost of one daylily and the cost of one shrub?

23) Lisa and Shayna each improved their yards by planting daylilies and shrubs. They bought their supplies from the same store. Lisa spent $74 on 7 daylilies and 6 shrubs. Shayna spent $114 on 12 daylilies and 9 shrubs. Find the cost of one daylily and the cost of one shrub.

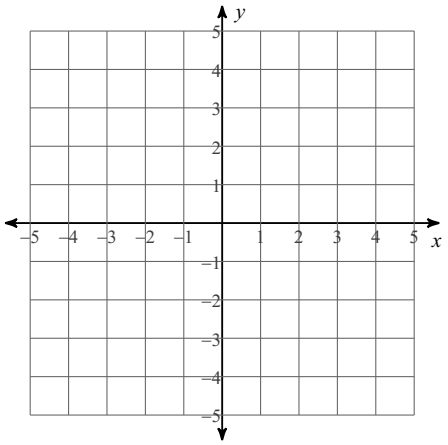
24) The sum of the digits of a certain two-digit number is 11. When you reverse its digits you decrease the number by 9. Find the number.

Sketch the solution to each system of inequalities.

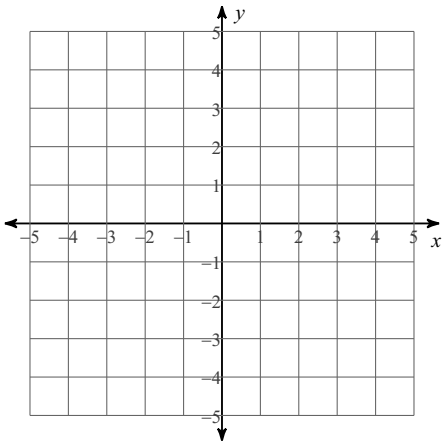
25) $y \le x + 2$
$y \ge 5x - 2$



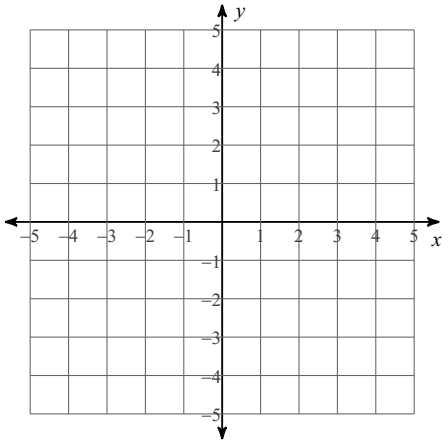
26) $y \le \frac{1}{2}x + 2$
$y > 3x - 3$



27) $y \le \frac{2}{3}x - 3$
$y > \frac{2}{3}x + 3$



28) $y < -x - 3$
$y > x + 1$



Simplify.

29) $(-2 - 4i) + (-2 - 8i)$

30) $3 - 6 - (7 - 7i)$

31) $(-1 - i) + (4 - 5i) + (-8 - 4i)$

32) $(-4 + 2i) + (1 - 8i) - 7$

33) $(-3i)(-2 - i)$

34) $(-5i)(7 - 7i)$

35) $(3i)(-3i)(-8 + 6i)$

36) $(-7 - 8i)(4 - 5i)$

Factor each completely.

37) $42r^2 + 132r - 144$

38) $9r^2 + 42r - 240$

39) $r^2 + r$

40) $n^2 + 7n + 10$

41) $r^4 - 2r^3 - 80r^2$

42) $6m^3 - 12m^2$

43) $30a^2 - 111a + 63$

44) $4p^2 + 31p - 90$

45) $20m^2 + 54m + 36$

46) $18x^3 + 12x^2 - 70x$

47) $25p^2 - 9$

48) $x^2 - 4$

49) $a^2 - 9b^2$

50) $4r^2 - 20r + 25$

51) $3m^2 - 24m + 48$

52) $16x^2 - 16xy + 4y^2$

Solve each equation by factoring.

53) $(7b + 4)(7b + 3) = 0$

54) $(v + 5)(v - 4) = 0$

55) $n^2 - 12n + 36 = 0$

56) $x^2 + 2x - 3 = 0$

57) $5k^2 + 33k - 56 = 0$

58) $4a^2 - 15a - 25 = 0$

59) $x^2 + 2x - 1 = 2$

60) $p^2 - 10p + 20 = 4$

61) $2n^2 + 7n + 8 = 2$

62) $7m^2 + 33m - 14 = -4$

Solve each equation by taking square roots.

63) $x^2 = 49$

64) $r^2 = 95$

65) $n^2 - 10 = 66$

66) $b^2 + 7 = 71$

67) $9v^2 + 3 = -155$

68) $8x^2 + 6 = 398$

Solve each equation by completing the square.

69) $a^2 + 14a - 53 = 0$

70) $n^2 + 20n + 9 = 0$

71) $v^2 - 10v + 12 = 3$

72) $x^2 - 18x - 50 = -10$

Solve each equation with the quadratic formula.

73) $p^2 + 12p + 32 = 0$

74) $2k^2 - 12k + 1 = 0$

75) $-2n^2 - 7 = -9$

76) $6x^2 + 7x - 22 = -7$