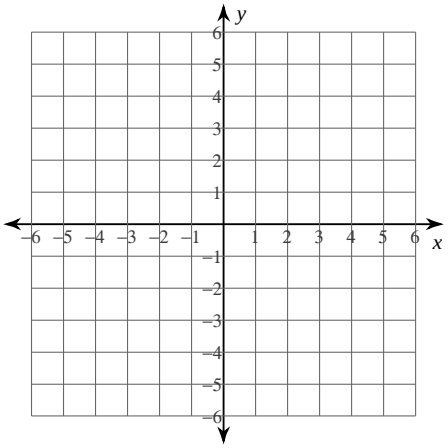
PreCalculus Name_____

PreCalculus Summer Work

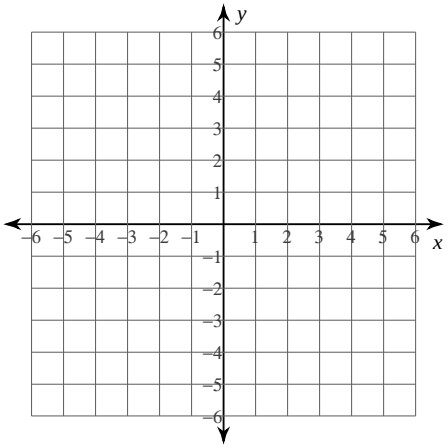
Date_____ Period____

Sketch the graph of each line.

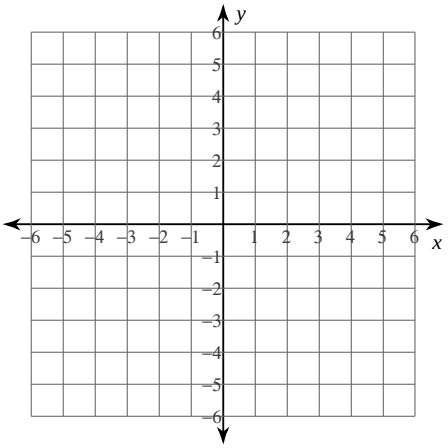
1) $-6x + 8y = 24$



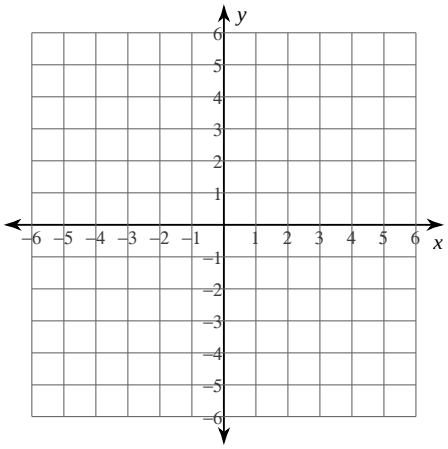
2) $-3y + 6 = -x$



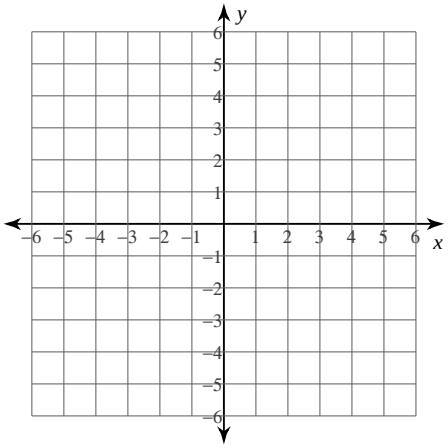
3) $0 = -y + 1 + \frac{2}{5}x$



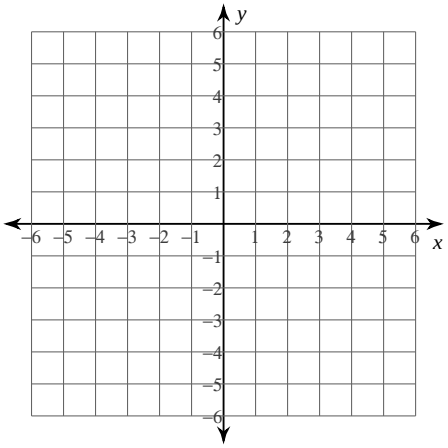
4) $3x + 4y + 8 = 0$



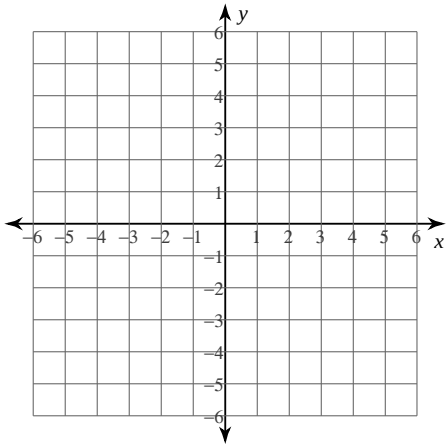
5) $15 + 3x = 3y$



6) $-2x - 5y = -10$

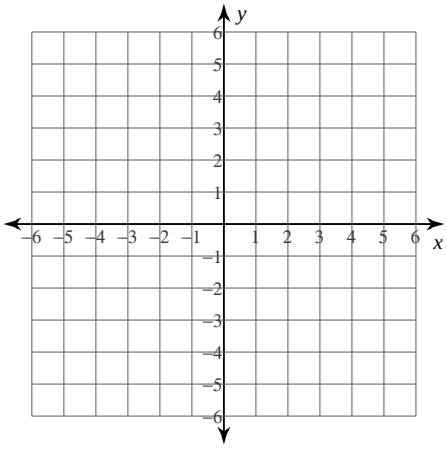


7) $-20 = -7x - 5y$

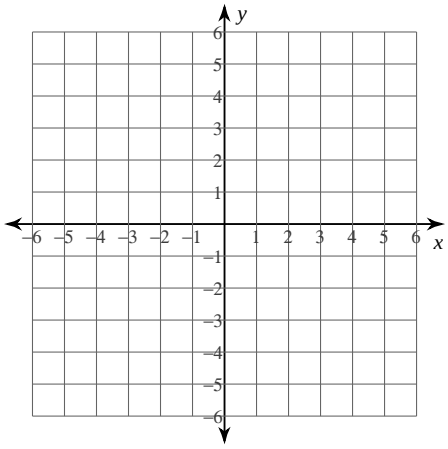


Sketch the graph of each linear inequality.

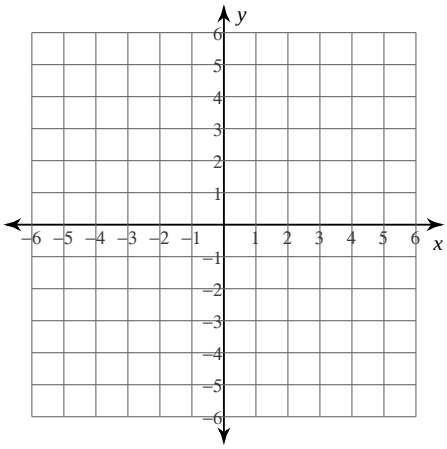
8) $3x + 5y \leq 15$



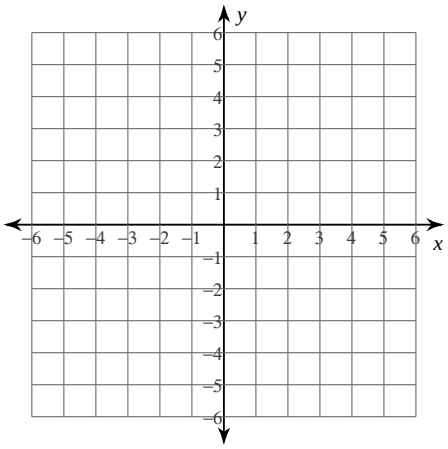
9) $x + 2y \leq 0$



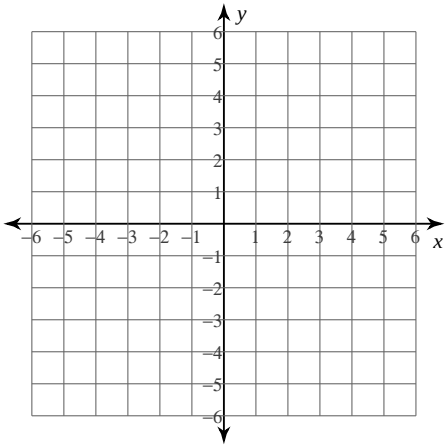
10) $4x + 3y < 0$



11) $x - y \geq -3$

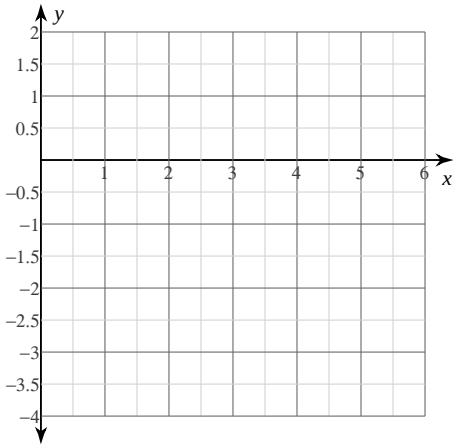


12) $x - y < 5$

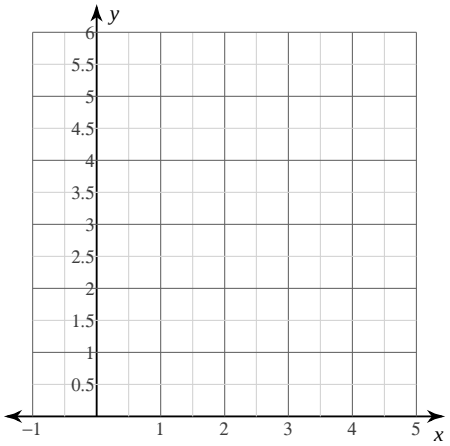


Sketch the graph of each function.

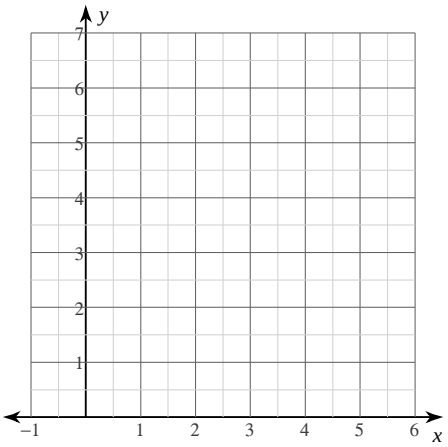
13) $y = x^2 - 6x + 6$



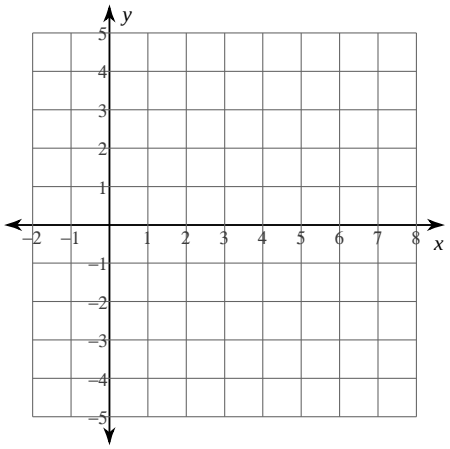
14) $y = x^2 - 4x + 5$



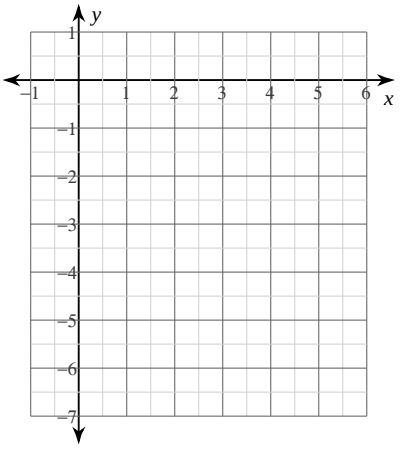
15) $y = x^2 - 8x + 18$



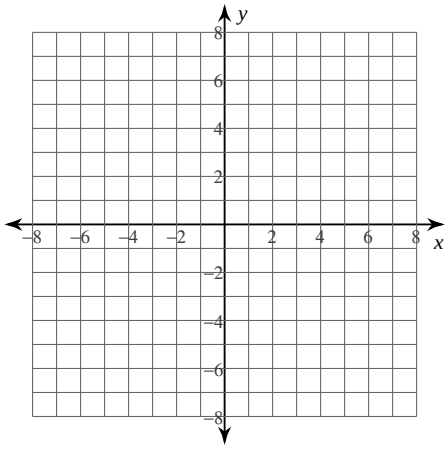
16) $y = 2x^2 - 4x - 2$



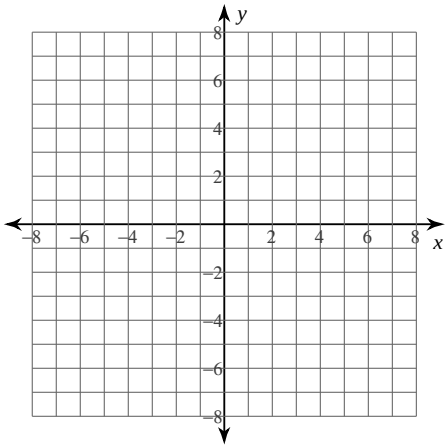
17) $y = -x^2 + 8x - 17$



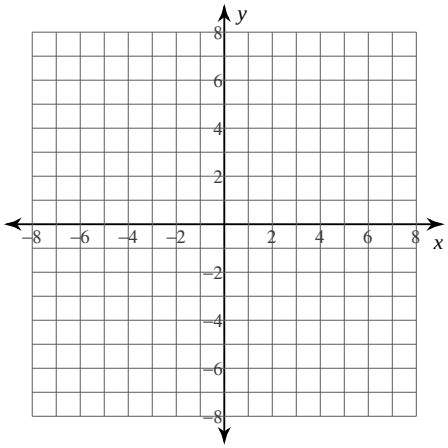
18) $y = \frac{2}{3}\sqrt{x}$



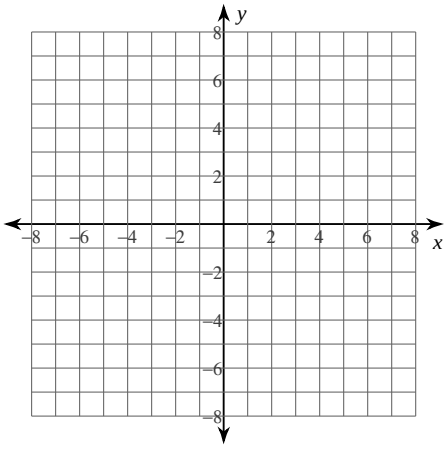
19) $y = \sqrt{x - 2}$



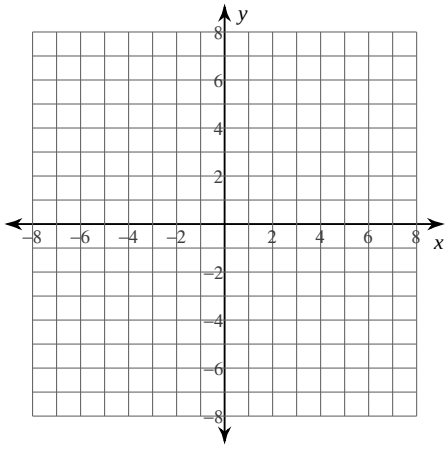
20) $y = 1 + \sqrt{x}$



21) $y = \sqrt{x} - 1$



22) $y = 2\sqrt{x - 3}$



Simplify each and state the excluded values.

23) $\frac{x^3 - 10x^2 + 24x}{4x - 16}$

24) $\frac{x^3 - 18x^2 + 80x}{2x^2 - 20x + 32}$

25) $\frac{b^2 - 14b + 48}{b^3 - 2b^2 - 48b}$

26) $\frac{n^3 - 6n^2 + 9n}{2n^2 - 6n}$

27) $\dfrac{m^2 - 9m + 14}{m^3 - 6m^2 - 7m}$

Simplify each expression.

28) $\dfrac{n-4}{6(n+1)} + \dfrac{n-1}{6(n+1)}$

29) $\dfrac{3r}{3(r+1)} + \dfrac{r-3}{3(r+1)}$

30) $\dfrac{4n}{6(n+4)} - \dfrac{5n}{6(n+4)}$

31) $\dfrac{6m+5}{3(m-2)(2m-5)} + \dfrac{m-6}{3(m-2)(2m-5)}$

32) $\dfrac{4b-4}{(b+4)(b-2)} - \dfrac{b+1}{(b+4)(b-2)}$

33) $\dfrac{6n}{9(n+2)} + \dfrac{6n}{3}$

34) $\dfrac{a+1}{12a(a+1)} + \dfrac{2}{3}$

35) $\dfrac{2}{3} - \dfrac{2}{3(p-2)}$

36) $\dfrac{5}{2n} - \dfrac{n+5}{6n(n-2)}$

37) $\dfrac{5}{m-3} - \dfrac{3}{4m^2}$

38) $\dfrac{x^2 + 14x + 40}{x-2} \div \dfrac{x^2 + 8x - 20}{x^2 - 4x + 4}$

39) $\dfrac{n^2 + 5n + 4}{n-8} \div \dfrac{8n+32}{n^2 - 3n - 40}$

40) $\dfrac{40v^3 + 64v^2}{v^2 + 13v + 40} \cdot \dfrac{7v^3 + 56v^2}{40v^3 + 64v^2}$

41) $\dfrac{3n+27}{2n+18} \div \dfrac{3n+27}{2n+10}$

42) $\dfrac{b^2 + 19b + 90}{10} \div \dfrac{b^2 + 19b + 90}{10b + 80}$

Simplify.

43) $3\sqrt{45} - 2\sqrt{5} - 2\sqrt{27}$

44) $-3\sqrt{45} - \sqrt{20} - 3\sqrt{27}$

45) $3\sqrt{8} + 2\sqrt{27} - 2\sqrt{8}$

46) $-2\sqrt{6} - 3\sqrt{20} - 3\sqrt{6}$

47) $-2\sqrt{54} + 2\sqrt{5} + 2\sqrt{6}$

48) $-\sqrt{45} - 2\sqrt{8} - \sqrt{2}$

49) $(-4 + \sqrt{2})(-1 - 5\sqrt{2})$

50) $(\sqrt{5} + 3)(-3\sqrt{5} - 1)$

51) $(-3\sqrt{2} + \sqrt{3})(-4\sqrt{2} + 4\sqrt{3})$

52) $(4\sqrt{5} - 4)(\sqrt{5} - 1)$

53) $(\sqrt{2} - 2\sqrt{3})(\sqrt{2} + \sqrt{3})$

54) $(-5\sqrt{3} + \sqrt{2})(\sqrt{3} - 2\sqrt{2})$

55) $(\sqrt{2}+5)(3\sqrt{2}-1)$

Factor each completely.

56) $x^2 - 17x + 70$

57) $p^2 - 3p - 40$

58) $m^2 - 4m$

59) $x^4 + 10x^3$

60) $3r^3 + 30r^2$

61) $25m^2 + 90m - 175$

62) $3x^2 + 10x$

63) $7p^2 + 22p - 24$

64) $7x^2 + 17x - 12$

65) $9m^2 - 66m - 48$

66) $25n^2 - 10n + 1$

67) $25x^2 - 4$

68) $9n^2 - 1$

69) $25x^2 + 10x + 1$

70) $4b^2 - 25$

71) $375 + 3a^3$

72) $27m^3 - 8$

73) $x^3 + 8$

74) $-64 - m^3$

75) $375x^3 - 24$

76) $35p^3 - 20p^2 + 21p - 12$

77) $48x^3 + 18x^2 + 40x + 15$

78) $2x^3 - 4x^2 + 7x - 14$

79) $9v^3 + 15v^2 + 6v + 10$

80) $4n^3 - 28n^2 + 3n - 21$

Simplify. Your answer should contain only positive exponents.

81) $\dfrac{(2ab)^3 \cdot 2a^4b^0}{a^3}$

82) $\dfrac{(x^4y^3)^4}{x^4 \cdot 2yx^3}$

83) $\dfrac{(a^4b^4 \cdot b^4)^0}{a^2b^0}$

84) $\dfrac{(2y^2 \cdot 2xy)^2}{2x^4y^2}$

85) $\dfrac{(2u^4v^0)^3 \cdot u^3}{2uv}$