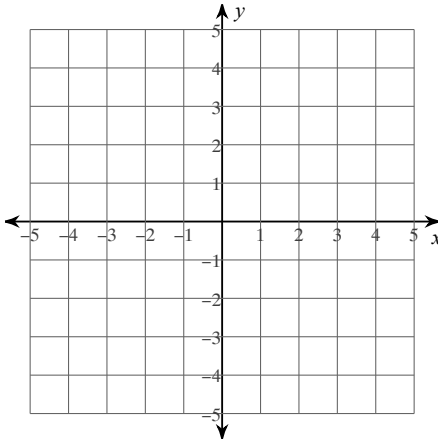


Summer Work 2020

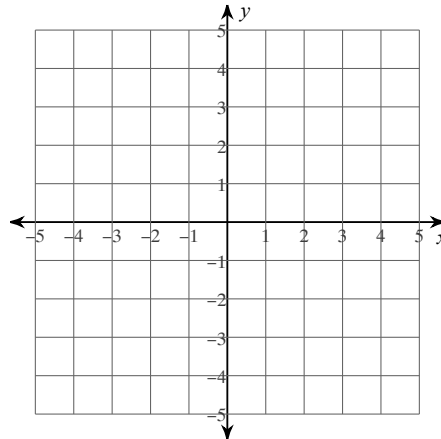
For the following practice problems, you **MUST** show your work and **CIRCLE** your answers.
Due date: August 31st, 2020 (to your Algebra 2 teacher)

Solve each system by graphing.

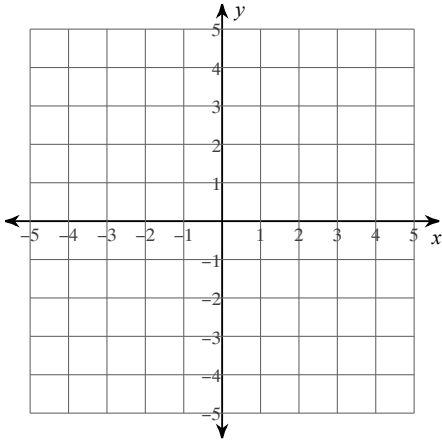
1) $y = -2x - 3$
 $y = 2x + 1$



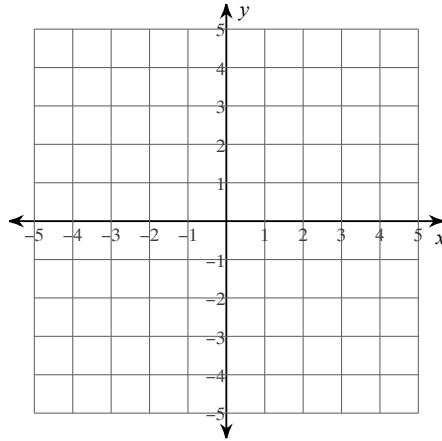
2) $y = -\frac{1}{3}x + 4$
 $y = \frac{2}{3}x + 1$



$$\begin{aligned} 3) \quad x + 2y &= -2 \\ x + 2y &= -8 \end{aligned}$$



$$\begin{aligned} 4) \quad x - y &= -1 \\ x + 2y &= -4 \end{aligned}$$



Solve each system by substitution.

$$\begin{aligned} 5) \quad y &= x - 12 \\ y &= 2x - 18 \end{aligned}$$

$$\begin{aligned} 6) \quad 6x + 5y &= 2 \\ y &= x - 15 \end{aligned}$$

$$\begin{aligned} 7) \quad 2x - 8y &= 16 \\ 4x - 16y &= 32 \end{aligned}$$

$$\begin{aligned} 8) \quad 8x + 5y &= 19 \\ -3x + y &= 13 \end{aligned}$$

Solve each system by elimination.

$$\begin{aligned} 9) \quad & -10x + 5y = 5 \\ & 10x - 7y = -11 \end{aligned}$$

$$\begin{aligned} 10) \quad & -2x - y = 22 \\ & -2x - 4y = 28 \end{aligned}$$

$$\begin{aligned} 11) \quad & x + 8y = 10 \\ & 6x - 2y = 10 \end{aligned}$$

$$\begin{aligned} 12) \quad & 2x + 5y = 23 \\ & 9x - 2y = 30 \end{aligned}$$

- 13) Paul and John are selling fruit for a school fundraiser. Customers can buy small boxes of tangerines and large boxes of tangerines. Paul sold 9 small boxes of tangerines and 1 large box of tangerines for a total of \$127. John sold 5 small boxes of tangerines and 14 large boxes of tangerines for a total of \$326. What is the cost each of one small box of tangerines and one large box of tangerines?

Simplify. Your answer should contain only positive exponents.

$$14) \frac{(2uv^4)^2 \cdot 2uv^3}{u^{-3}}$$

$$15) \frac{x^3 y^3 \cdot (-2x^0 y^{-1})^{-2}}{x^0 y^{-3} \cdot 2x^{-4} y^4}$$

$$16) \frac{(-m)^{-3}}{-n^{-1} \cdot 2n^{-1}}$$

$$17) \left(\frac{y^4}{x^4 y^4 \cdot x^{-4} y^{-1}} \right)^0$$

$$18) \frac{(-x^{-1} y^{-1})^4}{-2x^{-1} y^2 \cdot yx^0}$$

$$19) \frac{x^{-4} y^{-4} \cdot xy^{-3}}{(-2yx^4)^4}$$

$$20) \frac{(xy^4)^4 \cdot -2x^3 y^4}{x^4 y^4}$$

$$21) \frac{(2a^0)^2}{-a^{-4} b^{-4} \cdot -ab^4}$$

$$22) \frac{2a^0 \cdot 2a^2 b^3}{(-2a^2 b^3)^{-2}}$$

$$23) \frac{2m^{-3} n^2}{(2m^2 n^3 \cdot -n^{-2})^2}$$

Factor the common factor out of each expression.

24) $24x^3y^2 + 27x^4$

25) $-9y^3x^2 - 9y$

Factor each completely.

26) $14n^2 - 146n + 60$

27) $5m^2 + 3m - 8$

28) $20m^2 - 104m - 252$

29) $3b^2 + 20b - 7$

30) $r^2 - 25$

31) $25n^2 + 30n + 9$

$$32) 25n^3 + 15n^2 + 5n + 3$$

$$33) 6b^3 - 9b^2 + 2b - 3$$

Solve each equation by taking square roots. Leave your answer in simplest radical form, where necessary.

$$34) 9p^2 - 3 = 6$$

$$35) 9b^2 - 2 = 682$$

Solve each equation by factoring.

$$36) 4b^2 - 96 = -20b$$

$$37) x^2 - 24 = -5x$$

$$38) 3b^2 + 126 = 39b$$

$$39) 8x^2 - 32x = 168$$

Solve each equation by completing the square.

40) $x^2 - 16x - 66 = -9$

41) $n^2 - 16n + 20 = -8$

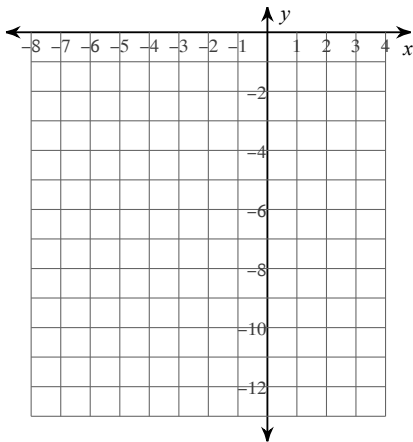
Solve each equation with the quadratic formula. Round decimal answers to the nearest tenth.

42) $5x^2 + 2x = 72$

43) $4x^2 - 99 = 4x$

Find a) LOS, b) Vertex, c) y-intercept, d) sketch the graph of each function.

44) $y = -2x^2 + 4x - 6$



45) $y = 3x^2 + 12x + 10$

