

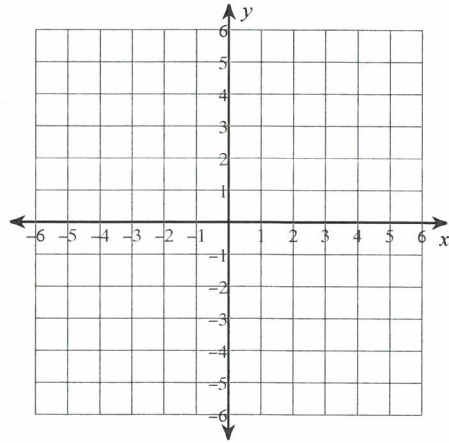
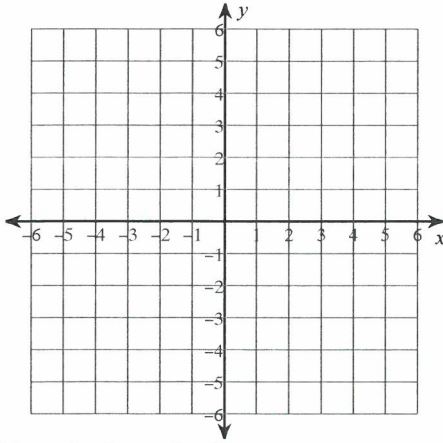
Practice Final 2023

Chapter 7 Graphing Systems (esource: Ch7 Graphing Practice Test)

Sketch the graph of each linear inequality. Show a test point

1) $y < \frac{3}{5}x + 4$

2) $y \leq -\frac{2}{3}x - 2$



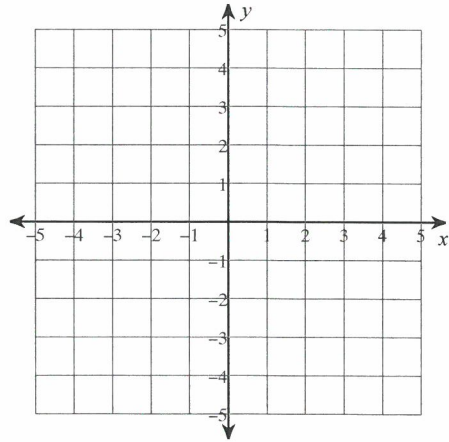
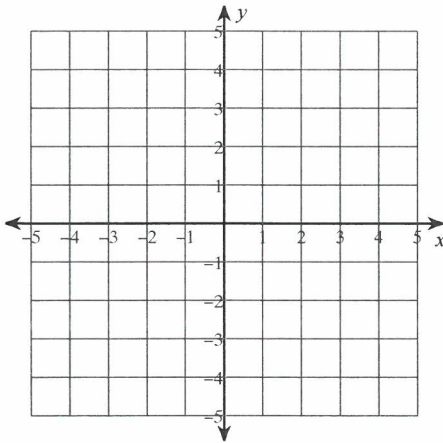
Sketch the solution to each system of inequalities. Show a test point for each equation.

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

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

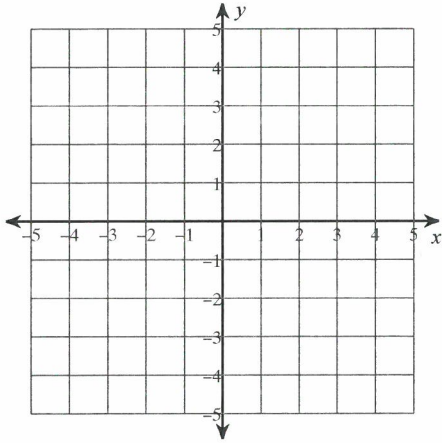
$y < -\frac{1}{3}x + 1$

$y > -x + 3$

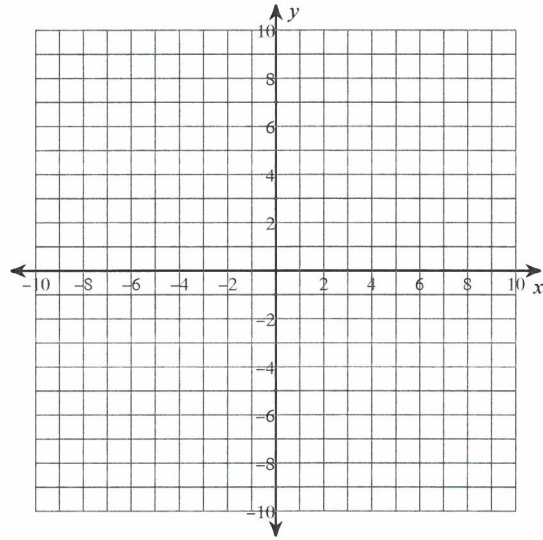


Solve each system by graphing (recommend checking)

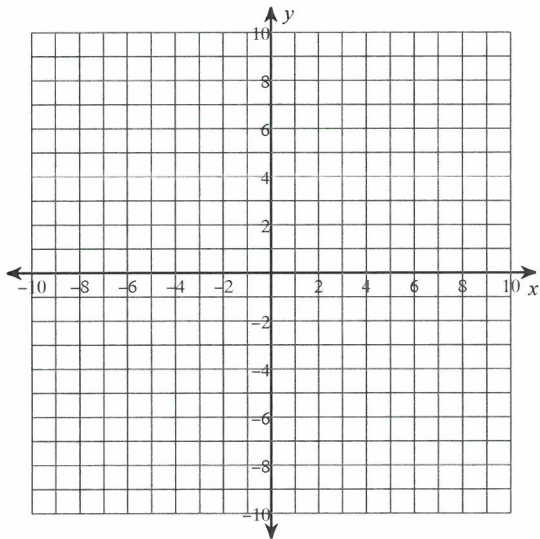
5) $y = -\frac{3}{2}x - 2$
 $y = -\frac{1}{4}x + 3$



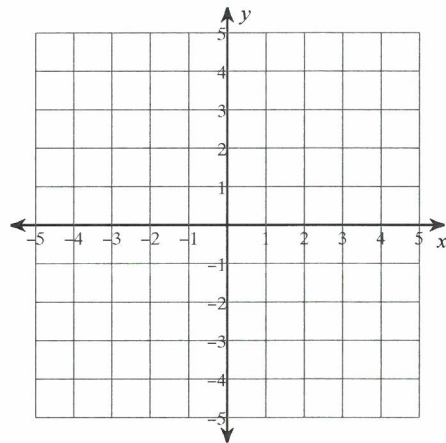
6) $y = 3x - 2$
 $y = -\frac{1}{2}x - 9$



7) $y = \frac{5}{4}x - 8$
 $y = -\frac{1}{4}x + 4$



8) $y = -2x - 1$
 $y = x - 4$



Chapter 7 - Solving Systems (source Chapter 7 Test)

ALL QUESTIONS ARE 10pts. Read instructions! Recommend checking for partial credit.

Solve each system by substitution. Then check the solution algebraically

9) $y = 5x + 25$
 $12x + 3y = -33$

Solve each system by elimination.

10) $10x - 9y = -11$
 $10x - 10y = -10$

11) $9x + 7y = 7$
 $-8x - 7y = -14$

Solve the system using either the substitution or elimination method.

$$\begin{aligned} 12) \quad & 12x - 2y = -18 \\ & 2x + y = -7 \end{aligned}$$

$$\begin{aligned} 13) \quad & x = 6y + 1 \\ & 4x - 8y = 20 \end{aligned}$$

$$\begin{aligned} 14) \quad & y = 8x - 16 \\ & 2x - 2y = 18 \end{aligned}$$

$$\begin{aligned} 15) \quad & -8x - 5y = -21 \\ & 3x - 9y = -3 \end{aligned}$$

$$\begin{aligned} 16) \quad & 8x - 4y = -28 \\ & -8x - 4y = -12 \end{aligned}$$

WPs: Solve the system using either the substitution or elimination method.

- 17) Paul and Asanji each improved their yards by planting rose bushes and geraniums. They bought their supplies from the same store. Paul spent \$106 on 6 rose bushes and 7 geraniums. Asanji spent \$126 on 6 rose bushes and 9 geraniums. Find the cost of one rose bush and the cost of one geranium.

****Key Information:**

Define variables:

X= _____
Y= _____

Define system:

EQ1: _____
EQ2: _____

Solve the system:

Answer (in words):

- 18) Natalie's school is selling tickets to the annual talent show. On the first day of ticket sales the school sold 18 senior citizen tickets and 14 student tickets for a total of \$412. The school took in \$222 on the second day by selling 15 senior citizen tickets and 3 student tickets. What is the price each of one senior citizen ticket and one student ticket?

****Key Information:**

Define variables:

X= _____
Y= _____

Define system:

EQ1: _____
EQ2: _____

Solve the system:

Answer (in words):

Chapter 8 - Exponents "source: 8.1 - 8.3 Working with Exponents (2020):

8.1) Simplify. Your answer should contain only positive exponents.

19) $-3m \cdot -2m^2$

20) $-x^4y^3 \cdot -x^4y^3$

21) $-3x^3y^4 \cdot -2x^4y^3$

22) $4x^2y^2 \cdot -y^3 \cdot -x^2y^2$

23) $2x^2y^4 \cdot 4y$

24) $-mn^2 \cdot -3n^3$

25) $3u^3v^2 \cdot 3u$

26) $-4x^4 \cdot -2y^2$

27) $-4b^4 \cdot a^3b^3 \cdot -3a^3b^3$

28) $x^3y^3 \cdot -4x^2y^4 \cdot 3x^2y^2$

29) $4x \cdot 4x^2y^3$

30) $2m^3n^3 \cdot 3nm^4$

8.2) Simplify. Leave answers with improper fractions using only positive exponents.

31) $\frac{4k^3}{-2k}$

32) $\frac{4x^{-1}}{-4x^{-2}}$

33) $\frac{b^{-1}}{-4b}$

34) $-\frac{x^3}{4x^3}$

35) $-\frac{4x^4}{x^{-4}}$

36) $\frac{-3v^4}{-2v}$

37) $\frac{n^2}{3n^3}$

38) $\frac{2v^4}{v^{-3}}$

39) $\frac{-4x^2}{-3x^4}$

40) $\frac{2x^{-4}}{x}$

41) $\frac{2x^4}{x^4}$

42) $\frac{-2n^4}{-3n^{-2}}$

Chapter 8 - Exponents - More practice problems

Simplify. Leave answers with improper fractions using only positive exponents.

$$43) (4x^2y^0)^3$$

$$44) (-2xy^3)^0$$

$$45) (-3mn^4)^3$$

$$46) (-2xy)^4$$

$$47) \left(\frac{3x^{-2}}{2x^{-1}}\right)^4$$

$$48) \left(\frac{-4x^{-3}y^2}{-2y^4}\right)^2$$

$$49) -\frac{12x^{-3}y^2}{15x^3}$$

$$50) \frac{-4xy^3}{-x^0}$$

$$51) \frac{2y^{-1}}{3x^{-4}y^{-4}}$$

$$52) \frac{-8xy^2}{-16x^4y^3}$$

Chapter 9 - Polynomials and Factoring

(resource: 9.1 to 9.7 KUTA Review - with some modifications to match Final)

Name each polynomial by degree and number of terms.

53) $-9x - 7x^3 - 8x^2$

54) $-7k^3 - 2$

55) $5k^3 - 1$

56) 9

57) $n + 5n^3 - 1$

58) $-3x - 9x^3 + 7x^2$

Simplify each sum.

59) $(3x^2 - x^3 - 1) + (1 - 3x^2 - 2x^3)$

60) $(3x^4 - x^2 - 3x^3) + (-4x^4 - x^3 - 6)$

Simplify each difference.

61) $(-6x^2 - x^3 + 6x) - (8x^3 - 6 + 6x^2)$

62) $(6x^4 - x - x^2) - (-x - 2x^4 + 8x^2)$

Find each product.

63) $-2x(3x^2 - 2x - 8)$

64) $(7x + 8)(3x - 3)$

65) $(3x + 6)(3x - 6)$

66) $(2x - 6)^2$

67) $(3x - 3)(7x^2 - 3x - 8)$

Chapter 9 - Polynomials and Factoring (cont)

Factor

68) $x^2 - 15x + 54$

69) $x^2 - 5x - 36$

70) $x^2 - 8x + 15$

71) $n^2 - 5n - 50$

72) $25x^2 - 16$

73) $4n^2 - 12n + 9$

Factor completely

74) $5n^2 - 5n - 60$

75) $4x^2 + 12x - 112$

76) $6x^2 - 18x$

77) $5x^2 + 5x - 360$

78) $-n^2 + n + 20$

79) $-5n^2 - 35n + 150$

Chapter 9 - Factoring (esource: selected problems from Chapter 9 KUTA Review)

SOLVE each equation by factoring. Remeber do calculator checks in the original equation!

NOTE: SOME OF THESE EQ's NEED TO BE PUT IN STANDARD FORM

80) $x^2 + 7x = -10$

81) $2x^2 + 26x = -80$

82) $0 = 20 - 5n^2$

83) $3x^2 = -3x$

84) $b^2 + 10b + 25 = 0$

85) $5b^2 - 15b = 20$

esource: Practice Test 10.1-10.3 - Graph Quadratics (selected problems)

For each quadratic function, clearly answer the following questions:

- (a) Identify the coefficients of the quadratic function. Label "A, B, C"
- (b) Determine the direction of the parabola and explain. Label "SHAPE:"
- (c) Identify the ordered pair for the y-intercept and explain. Label "Y-INT:"

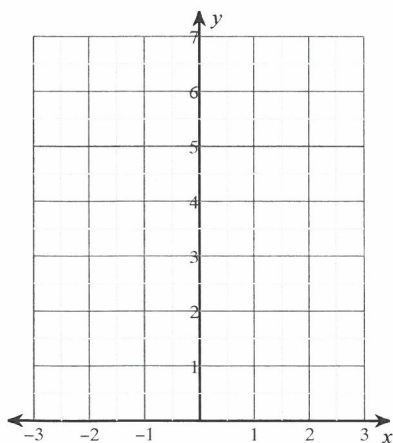
86) $f(x) = -x^2 + 10$

Graph the quadratic function in standard form and identify the y-intercept, axis of symmetry, and vertex.

- (a) Clearly graph at least 5 points and provide the supporting table of values in the space provided below. Mark the vertex on the table.
- (b) Give the ordered pair for the y-intercept: _____. Mark it on the graph with a "Y".
- (c) Calculate the axis of symmetry below. What is the appropriate equation for A.S.. Mark it "AS" on the graph.

- (d) Give the ordered pair for the vertex _____. Mark it "V" on the graph.

87) $f(x) = x^2 + 2x + 3$



Graph the quadratic function in standard form and identify the y-intercept, axis of symmetry, and vertex.

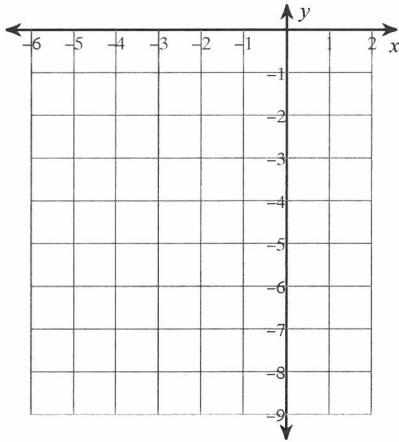
(a) Clearly graph at least 5 points and provide the supporting table of values in the space provided below. Mark the vertex on the table.

(b) Give the ordered pair for the y-intercept: _____. Mark it on the graph with a "Y".

(c) Calculate the axis of symmetry below. What is the appropriate equation for A.S.. Mark it "AS" on the graph.

(d) Give the ordered pair for the vertex _____. Mark it "V" on the graph.

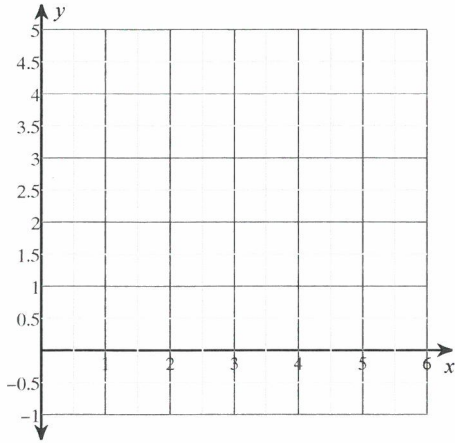
88) $f(x) = -x^2 - 2x - 5$



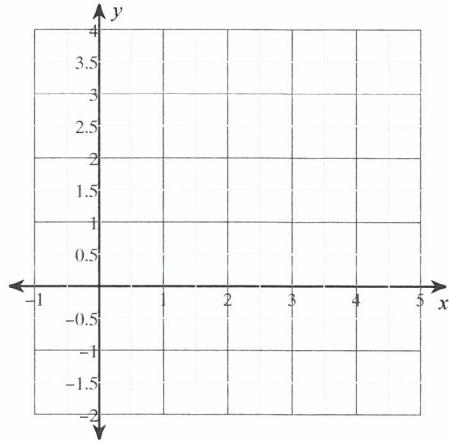
SOLVE the quadratic function by graphing.

(a) Clearly graph at least 5 points and provide the supporting table of values in the space provided below. Mark the vertex on the table; **(b)** If possible, mark intercepts on graph with "x" an "y". **(c)** Mark the "AS" on the graph. **(d)** Circle the solutions are label $x = \underline{\hspace{1cm}}$.

89) $f(x) = -x^2 + 6x - 5$



90) $f(x) = x^2 - 4x + 3$



10.6 - Solve Quadratic with the Quad. Formula (see 10.6 Practice A handout)

Solve each equation with the quadratic formula. (1) State A,B,C; (2) clearly show work; (3) Show checks

91) $2x^2 - 2x - 144 = 0$

92) $x^2 - 12x - 85 = 0$

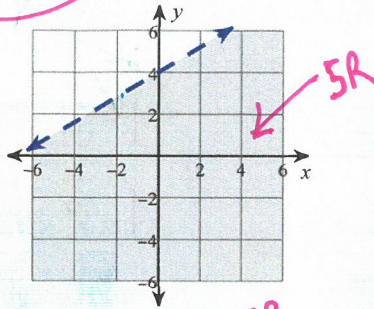
93) $-3x^2 - 9x + 84 = 0$

94) $2x^2 - 8x + 8 = 0$

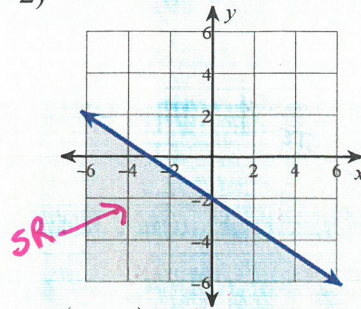
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Answers to Practice Final 2023 (ID: 1)

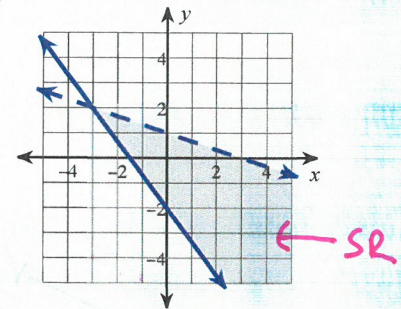
1)



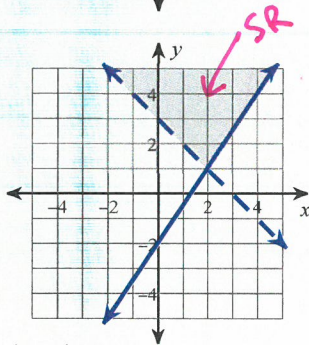
2)



3)



4)



5) $(-4, 4)$

6) $(-2, -8)$

7) $(8, 2)$

8) $(1, -3)$

9) $(-4, 5)$

10) $(-2, -1)$

11) $(-7, 10)$

12) $(-2, -3)$

13) $(7, 1)$

14) $(1, -8)$

15) $(2, 1)$

16) $(-1, 5)$

17) rose bush: \$6, geranium: \$10

18) senior citizen ticket: \$12, student ticket: \$14

19) $6m^3$

20) x^8y^6

21) $6x^7y^7$

22) $4x^4y^7$

23) $8x^2y^5$

24) $3mn^5$

25) $9u^4v^2$

26) $8x^4y^2$

27) $12b^{10}a^6$

28) $-12x^7y^9$

29) $16x^3y^3$

30) $6m^7n^4$

31) $-2k^2$

32) $-x$

33) $-\frac{1}{4b^2}$

34) $-\frac{1}{4}$

35) $-4x^8$

36) $\frac{3v^3}{2}$

37) $\frac{1}{3n}$

38) $2v^7$

39) $\frac{4}{3x^2}$

40) $\frac{2}{x^5}$

41) 2

42) $\frac{2n^6}{3}$

43) $64x^6$

44) 1

45) $-27m^3n^{12}$

46) $16x^4y^4$

47) $\frac{81}{16x^4}$

48) $\frac{4}{x^6y^4}$

49) $-\frac{4y^2}{5x^6}$

50) $4xy^3$

51) $\frac{2x^4y^3}{3}$

52) $\frac{1}{2x^3y}$

53) cubic trinomial

54) cubic binomial

55) cubic binomial

56) constant monomial

57) cubic trinomial

58) cubic trinomial

59) $-3x^3$

60) $-x^4 - 4x^3 - x^2 - 6$

61) $-9x^3 - 12x^2 + 6x + 6$

62) $8x^4 - 9x^2$

63) $-6x^3 + 4x^2 + 16x$

64) $21x^2 + 3x - 24$

65) $9x^2 - 36$

66) $4x^2 - 24x + 36$

67) $21x^3 - 30x^2 - 15x + 24$

68) $(x - 6)(x - 9)$

69) $(x - 9)(x + 4)$

70) $(x - 5)(x - 3)$

71) $(n + 5)(n - 10)$

72) $(5x + 4)(5x - 4)$

73) $(2n - 3)(2n - 3)$

74) $5(n - 4)(n + 3)$

75) $4(x - 4)(x + 7)$

76) $6x(x - 3)$

77) $5(x - 8)(x + 9)$

78) $-(n - 5)(n + 4)$

79) $-5(n + 10)(n - 3)$

80) $\{-2, -5\}$

81) $\{-8, -5\}$

82) $\{-2, 2\}$

83) $\{-1, 0\}$

84) $\{-5\}$

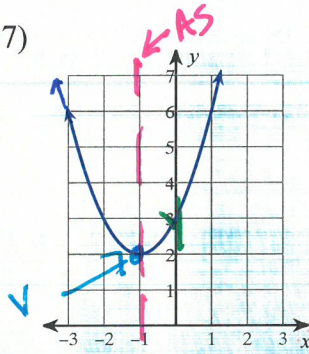
85) $\{4, -1\}$

86) $a=-1, b=0, c=10$

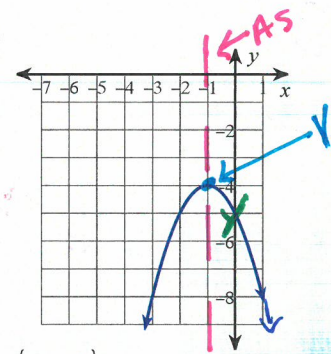
Opens DOWN b/c $A=-1$

Y-int $(0,10)$ b/c $C=10$

87)

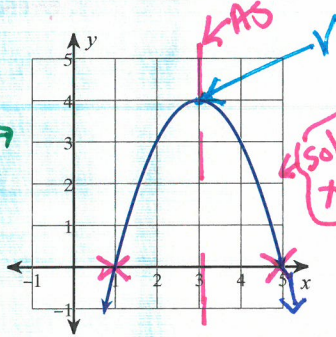


88)

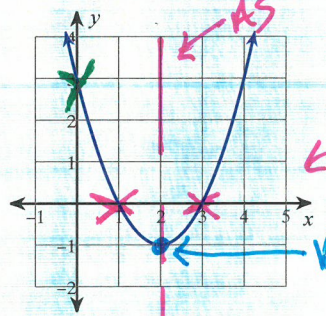


89)

Y-INT
WON'T
FIT ON
GRAPH



90)



91) $\{9, -8\}$

SOLUTIONS
 $x = 1, 5$

SOLUTIONS
 $x = 1, 3$

92) $\{17, -5\}$

93) $\{-7, 4\}$

94) $\{2\}$