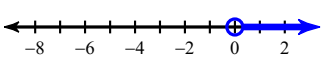
Algebra II Name_____

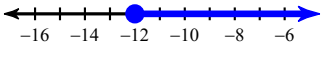
Review for Final

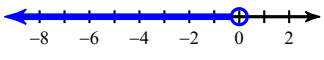
Date_____ Period____

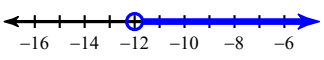
Solve each inequality and graph its solution.

1) $3p - 1 - 4 < -5$

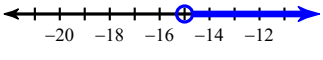
A) $p > 0$: 

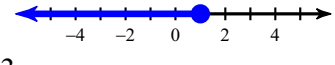
B) $p > -12$: 

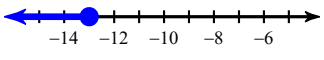
*C) $p < 0$: 

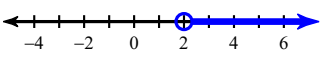
D) $p > -12$: 

2) $5 - 6x + 5 \geq 4$

A) $x \leq -15$: 

*B) $x \leq 1$: 

C) $x \leq -13$: 

D) $x \leq 2$: 

3) $\sqrt{288}$

A) $5\sqrt{6}$ B) $6\sqrt{2}$
C) $7\sqrt{5}$ *D) $12\sqrt{2}$

4) $\sqrt{343}$

A) $10\sqrt{2}$ *B) $7\sqrt{7}$
C) $2\sqrt{7}$ D) $4\sqrt{3}$

5) $\sqrt{16}$

A) $7\sqrt{7}$ B) $7\sqrt{5}$
C) $3\sqrt{2}$ *D) 4

6) $\sqrt{147}$

*A) $7\sqrt{3}$ B) $8\sqrt{6}$
C) $10\sqrt{2}$ D) $6\sqrt{3}$

7) $\sqrt{384m^4n^4}$

A) $12m^2\sqrt{2n}$ *B) $8m^2n^2\sqrt{6}$
C) $4n^2m\sqrt{6m}$ D) $7m^2n\sqrt{5n}$

8) $\sqrt[6]{256u^3v^7}$

A) $2u\sqrt[6]{2uv^5}$ B) $2v\sqrt[6]{6u^4}$
*C) $2v\sqrt[6]{4u^3v}$ D) $2u\sqrt[6]{2v}$

9) $\sqrt[4]{n^3}$

A) $(2n)^{\frac{3}{5}}$ B) $(3n)^{\frac{4}{5}}$
*C) $(n^3)^{\frac{1}{4}}$ D) $n^{\frac{2}{3}}$

10) $\sqrt{7r}$

*A) $(7r)^{\frac{1}{2}}$ B) $(6r)^{\frac{5}{3}}$
C) $(7r)^{\frac{2}{3}}$ D) $(4r)^{\frac{2}{3}}$

11) $(10k)^{\frac{2}{3}}$

A) $\left(\sqrt[3]{7k}\right)^4$ *B) $\left(\sqrt[3]{10k}\right)^2$
C) $\sqrt[6]{k^3}$ D) $\left(\sqrt[5]{3k}\right)^8$

12) $(3v)^{\frac{2}{3}}$

A) $\left(\sqrt[6]{v}\right)^7$ B) $\left(\sqrt[3]{7v}\right)^5$
*C) $\left(\sqrt[3]{3v}\right)^2$ D) $\left(\sqrt[5]{3v}\right)^3$

13) $(100m^6)^{\frac{3}{2}}$

A) m^6 *B) $1000m^9$
C) $6m$ D) $3m$

14) $(p^6)^{\frac{1}{3}}$

A) $729p^3$ B) $8p^2$
C) $27p^3$ *D) p^2

15) $-3\sqrt{12} - 2\sqrt{12}$

A) $-16\sqrt{3}$ *B) $-10\sqrt{3}$
C) $-18\sqrt{3}$ D) $-12\sqrt{3}$

16) $-2\sqrt{3} + 2\sqrt{27}$

A) $10\sqrt{3}$ B) $-2\sqrt{3}$
*C) $4\sqrt{3}$ D) 0

17) $-3\sqrt{8} - 3\sqrt{8}$

A) $-24\sqrt{2}$ *B) $-12\sqrt{2}$
C) $-30\sqrt{2}$ D) $-18\sqrt{2}$

18) $2\sqrt{2} - 3\sqrt{6} + 3\sqrt{2}$

A) $-6\sqrt{6}$
B) $5\sqrt{2} - 6\sqrt{6}$
*C) $5\sqrt{2} - 3\sqrt{6}$
D) $2\sqrt{2} - 6\sqrt{6}$

19) $3\sqrt{45} - \sqrt{8} + 2\sqrt{20}$

A) $17\sqrt{5} - 4\sqrt{2}$
*B) $13\sqrt{5} - 2\sqrt{2}$
C) $17\sqrt{5} - 2\sqrt{2}$
D) $13\sqrt{5} - 4\sqrt{2}$

20) $\sqrt{3} \cdot \sqrt{2}$

A) $4\sqrt{30}$ B) $\sqrt{5}$
*C) $\sqrt{6}$ D) 6

21) $\sqrt{10} \cdot -2\sqrt{5}$

A) $5\sqrt{2}$ B) $\sqrt{15}$
*C) $-10\sqrt{2}$ D) 50

22) $\sqrt{5}(2 + \sqrt{10})$

A) $\sqrt{30} + 5$
B) $-2\sqrt{30} + 9\sqrt{5}$
C) $20\sqrt{2} + 4$
*D) $2\sqrt{5} + 5\sqrt{2}$

23) $\sqrt{10}(4 + \sqrt{10})$

A) 12 B) $2\sqrt{3} + 10$
*C) $4\sqrt{10} + 10$ D) 10

24) $\sqrt{5}(-\sqrt{5} + 4)$

A) $5\sqrt{30} + 3$ B) $4\sqrt{5} + 2$
C) $-2\sqrt{30} + 5$ *D) $-5 + 4\sqrt{5}$

Use the information provided to write the standard form equation of each circle.

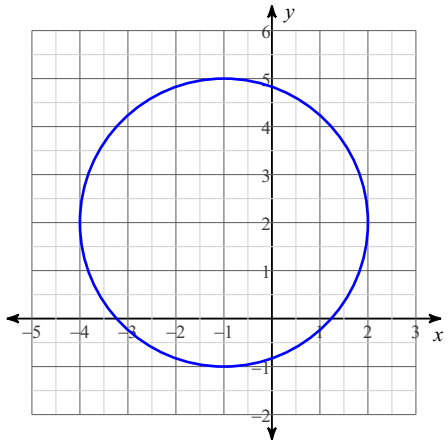
25) Center: $(-9, 7)$
Radius: 7

$(x + 9)^2 + (y - 7)^2 = 49$

26) Center: $(0, 5)$
Radius: $\sqrt{62}$

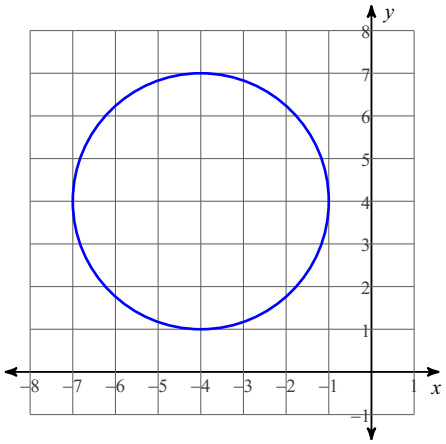
$x^2 + (y - 5)^2 = 62$

27)



$(x+1)^2+(y-2)^2=9$

28)



$(x+4)^2+(y-4)^2=9$

29) Center: $(-8, 10)$
Point on Circle: $(-15, 15)$

$(x+8)^2+(y-10)^2=74$

30) Center: $(4, 10)$
Point on Circle: $(-2, 10)$

$(x-4)^2+(y-10)^2=36$

31) Ends of a diameter: $(1, -14)$ and $(11, 4)$

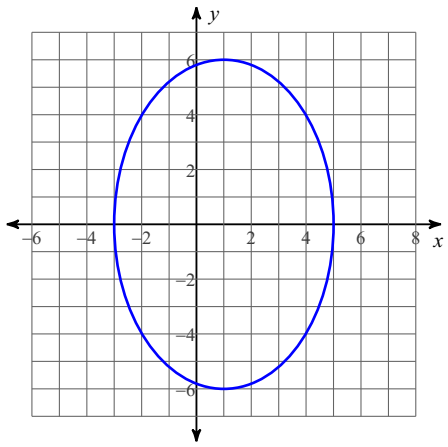
$(x-6)^2+(y+5)^2=106$

32) Ends of a diameter: $(0, -2)$ and $(-18, -12)$

$(x+9)^2+(y+7)^2=106$

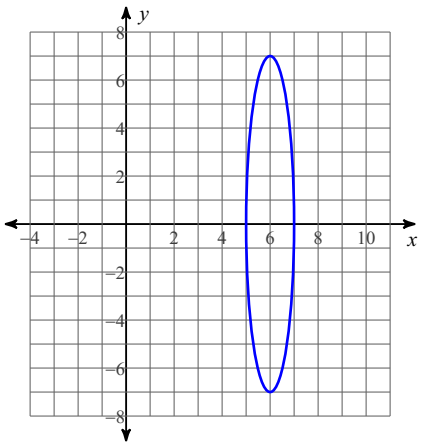
Use the information provided to write the standard form equation of each ellipse.

33)



$\frac{(x-1)^2}{16}+\frac{y^2}{36}=1$

34)



$(x-6)^2+\frac{y^2}{49}=1$

35) Vertices: $(7, 11), (7, 3)$
Co-vertices: $(8, 7), (6, 7)$

$(x-7)^2+\frac{(y-7)^2}{16}=1$

36) Vertices: $(10, 13), (10, -7)$
Co-vertices: $(17, 3), (3, 3)$

$\frac{(x-10)^2}{49}+\frac{(y-3)^2}{100}=1$

37) Vertices: $(9, 8), (-11, 8)$
Foci: $(-1+2\sqrt{21}, 8), (-1-2\sqrt{21}, 8)$

$\frac{(x+1)^2}{100}+\frac{(y-8)^2}{16}=1$

38) Vertices: $(21, 2), (-5, 2)$
Foci: $(20, 2), (-4, 2)$

$\frac{(x-8)^2}{169}+\frac{(y-2)^2}{25}=1$

39) Foci: $(-2+\sqrt{105}, 5), (-2-\sqrt{105}, 5)$
Co-vertices: $(-2, 13), (-2, -3)$

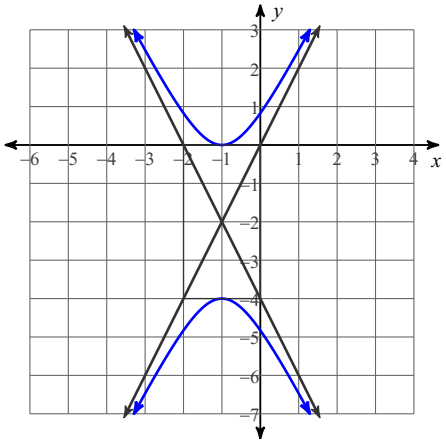
$\frac{(x+2)^2}{169}+\frac{(y-5)^2}{64}=1$

40) Foci: $(-15, -9), (-15, -9)$
Co-vertices: $(-10, 3), (-10, -21)$

$\frac{(x+10)^2}{169}+\frac{(y+9)^2}{144}=$

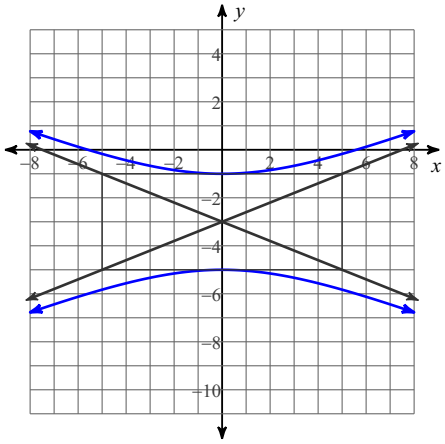
Use the information provided to write the standard form equation of each hyperbola.

41)



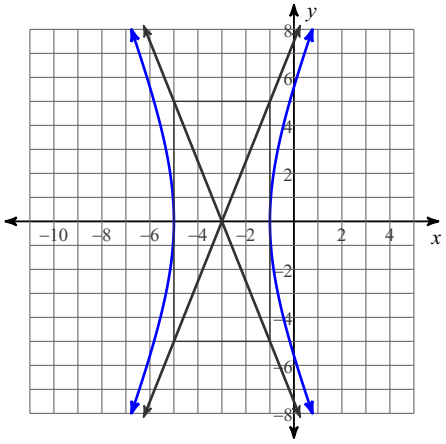
$$\frac{(y+2)^2}{4} - (x+1)^2 = 1$$

42)



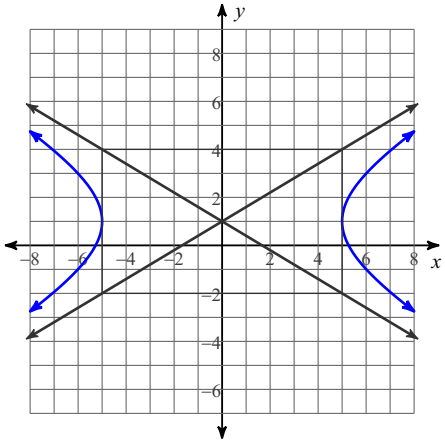
$$\frac{(y+3)^2}{4} - \frac{x^2}{25} = 1$$

43)



$$\frac{(x+3)^2}{4} - \frac{y^2}{25} = 1$$

44)



$$\frac{x^2}{25} - \frac{(y-1)^2}{9} = 1$$

45) Vertices: $(6, 7), (6, -1)$
Co-Vertices: $(9, 3)$
$(3, 3)$

$$\frac{(y-3)^2}{16} - \frac{(x-6)^2}{9} = 1$$

46) Vertices: $(-8, 5), (-8, -11)$
Co-Vertices: $(5, -3)$
$(-21, -3)$

$$\frac{(y+3)^2}{64} - \frac{(x+8)^2}{169} = 1$$

47) Vertices: $(2, 4), (-10, 4)$
Co-Vertices: $(-4, 12)$
$(-4, -4)$

$$\frac{(x+4)^2}{36} - \frac{(y-4)^2}{64} = 1$$

48) Vertices: $(9, -4), (9, -12)$
Co-Vertices: $(22, -8)$
$(-4, -8)$

$$\frac{(y+8)^2}{16} - \frac{(x-9)^2}{169} = 1$$

Learning Target: I can use the fundamental counting principle.
Represent the sample space using set notation.

49) When a button is pressed, a computer program outputs a random even number greater than 0 and less than 10. You press the button once.

A) {press, 2, 4}
B) {even, 2, 4, 6, 8}
C) {3, 5, 7}
*D) {2, 4, 6, 8}

50) A bagel shop has three types of bagels: plain, onion, and raisin.

A) {plain, onion, raisin, everything}
*B) {plain, onion, raisin}
C) {bagel, plain}
D) {bagel, plain, onion, raisin}

Find the number of possible outcomes in the sample space.

51) A jewelry store sells rings with either a ruby, sapphire, emerald, or diamond gemstone.

A) 8
B) 1
C) 9
*D) 4

52) The chess club must decide when to meet for a practice. The possible times are 3, 4, or 5 p.m.

A) 2
B) 7
*C) 3
D) 1

53) A spinner can land on either red or blue. You flip a coin and then spin the spinner.

A) 2
B) 7
*C) 4
D) 8

54) A sandwich shop has three types of sandwiches: ham, turkey, and chicken. Each sandwich can be ordered with white bread or multi-grain bread. Customers can add any combination of the six available toppings

*A) 384
B) 223
C) 480
D) 566

State if each scenario involves a permutation or a combination. Then find the number of possibilities.

55) The batting order for nine players on a 10 person team.

Permutation; 3,628,800

56) There are 230 politicians at a meeting. They each give a Valentine's Day card to everyone else. How many cards were given?

Permutation; 52,670

57) Beth has homework in five subjects. She is deciding what order to complete them in.

Permutation; 120

58) A team of 14 soccer players needs to choose a captain and co-captain.

Permutation; 182

59) There are 15 applicants for two Computer Programmer positions.

Combination; 105

60) There are 35 applicants for two Computer Programmer positions.

Combination; 595

61) Amy and Wilbur are planning trips to eleven countries this year. There are 15 countries they would like to visit. They are deciding which countries to skip.

Combination; 1,365

62) The student body of 25 students wants to elect four representatives.

Combination; 12,650

Determine if the scenario involves mutually exclusive events. Then find the probability.

63) There are fourteen shirts in your closet, four blue, five green, and five red. You randomly select one to wear. It is blue or green.

Mutually exclusive; $\frac{9}{14} \approx 0.643$

64) There are four nickels, three dimes, and four quarters in your pocket. You randomly pick a coin. It is a nickel or a dime.

Mutually exclusive; $\frac{7}{11} \approx 0.636$

65) There are five nickels, five dimes, and three quarters in your pocket. You randomly pick a coin. It is a nickel or a dime.

Mutually exclusive; $\frac{10}{13} \approx 0.769$

66) A spinner has an equal chance of landing on each of its five numbered regions. After spinning, it lands in region four or five.

Mutually exclusive; $\frac{2}{5} = 0.4$

67) A basket contains five apples and six peaches. One of the apples and four of the peaches are rotten. You randomly pick a piece of fruit. It is fresh or it is an apple.

Not mutually exclusive; $\frac{7}{11} \approx 0.636$

68) You roll a fair six-sided die. The die shows an even number or a number greater than three.

Not mutually exclusive; $\frac{2}{3} \approx 0.667$

69) A basket contains six apples and five peaches. Five of the apples and three of the peaches are rotten. You randomly pick a piece of fruit. It is rotten or it is an apple.

Not mutually exclusive; $\frac{9}{11} \approx 0.818$

70) A jar contains six blue marbles numbered one to six. The jar also contains four red marbles numbered one to four. You randomly pick a marble. It is red or has a number less than two.

Not mutually exclusive; $\frac{1}{2} = 0.5$