Pear Assessment

Math 10-11 Summer Packet

Created By Faranot Louis

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1 **Directions - Simplify the expression so all exponents are positive.**

$b^5x^{-9}y^7$ =

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2 **Directions - Simplify the expression so all exponents are positive.**

$\frac{x^{-2}}{y^{-6}}$ =

---

3 Completely simplify the following exponential expression $\frac{36x^5y^{-3}z}{-9x^8y^2z^4}$ with no negative exponents.

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4 Simplify: $\frac{2y^2}{4y^4 \cdot 2y^3}$

(A) $\frac{xy^2}{16}$

(B) $\frac{1}{y^6}$

(C) $\frac{y^2}{6}$

(D) $\frac{1}{4y^5}$

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5 Directions - Simplify the expression so all **exponents** are **positive**.

$-4d^{-3}$ =

---

6 Simplify: $(x^{-2}y^{-3})^2 \cdot 2xy^2$

(A) $\frac{y^{13}}{8x^{13}}$

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

(C) $\frac{1}{8y^{21}}$

(D) $64x^{20}y^4$

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7 Simplify: $x^2y^2 \cdot 4x^4y^{-1} \cdot x^3y^{-4}$

(A) $9x^3$

(B) $\frac{4x^9}{y^3}$

(C) $\frac{y^4}{x^3}$

(D) $\frac{3x^4}{y^4}$

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8 **Which student correctly solved this expression?**

$x^{\frac{1}{3}} \cdot x^{\frac{1}{4}}$

(A) Jo says the answer is $x^{\frac{7}{12}}$ because the exponents should be added.

(B) Kerrie says the answer is $x^{\frac{2}{7}}$ because the exponents should be added.

(C) Alex says the answer is $x^{\frac{7}{12}}$ because the exponents should be multiplied.

(D) Tracy says the answer is $x^{\frac{1}{12}}$ because the exponents should be multiplied.

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9 Simplify the Expression: $(2x^5y^2)^3$

(A) $2x^{15}y^6$

(B) $8x^{15}y^6$

(C) $8x^8y^5$

(D) $6x^{15}y^6$

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10 **Directions - Evaluate each expression when x = 2 and y = 3. Remember to follow order of operations.**

$x^2 + (y + 2)^2$ =

---

11 Solve the following equation for the given variable.

$-2(3y - 6) + 4(5y - 8) = 92$

(A) $y = -8$

(B) $y = 6$

(C) $y = -6$

(D) $y = 8$

---

12 Simplify: $\dfrac{x^{-3}y^{-4} \cdot x^2y^3}{(y^3)^{-4}}$

(A) $\dfrac{x^4y^4}{256}$

(B) $\dfrac{y^{11}}{x}$

(C) $\dfrac{x^3}{128y^{10}}$

(D) $\dfrac{2x^5}{y^5}$

---

13 Use the distributive property to solve the following equation:
$z + 4(2z + 3) = 15$

(A) z=4

(B) z=$\dfrac{1}{3}$

(C) z=3

(D) z=-1

---

14 Solve the following rational equation for x.

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

$x =$ [ ]

---

15 Solve the equation: **5 (2x + 1) = 25**

(A) x = -2

(B) x = -1.5

(C) x = 1.5

(D) x = 2

---

16 Amelia bought a t-shirt for $15 and 3 pairs of pants. She spent a total of $117. Which equation matches this problem?

(A) 15x+3=117

(B) 15+3x=117

(C) 15x+3x=117

(D) 15=117+3x

---

17 Solve the following equation:

$$\frac{1}{2}(b+2) + 3b = -1$$

[ ]

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18 Solve the equation: **2 (x + 2x) = 36**

(A) x = -18

(B) x = 18

(C) x = -6

(D) x = 6

---

19 Factor $9x^2 - 30x + 25$

(A) $(3x + 5)(3x - 5)$

(B) $(3x - 5)^2$

(C) $(3x + 5)^2$

(D) $3(x - 5)^2$

---

20 When solving $|5k + 6| = 39$ what two equations would we set up to allow us to get rid of the absolute value bars?

A $5k + 6 = 39$

B $5k - 6 = -39$

C $-5k + 6 = 39$

D $5k + 6 = -39$

---

21 A puppy named Bruno started out at 4 pounds and gained 1 pound every month. At how many months did Bruno weigh 10 pounds?

_____ months

---

22 What is the constant in 15-8y

(A) 15

(B) 8

(C) -8

(D) -15

---

23 Solve the following equation by combining like terms:

$x + x + 2 + 3x - 6 = 31$

x = _____

---

24 Solve the following absolute value.

$-8 = -3\,|x - 5| - 2$

(A) $x = \{-7,\ 7\}$

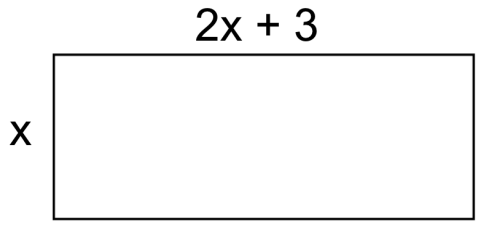
(B) $x = \{-3,\ 3\}$

(C) $x = \{3,\ 7\}$

(D) $x = \{-7,\ -3\}$

---

25 Write an expression that represents the perimeter of the rectangle. Simplify the expression.



Perimeter =

---

26 **Solve the inequality.**

$5\,(2x + 4) \leq 5x + 20$

---

27 Directions - Solve each equation for the variable.

5) $\frac{x}{3} + 3 = 7$

---

28 Anajah wants to find the solutions to the absolute value equation below:

$|-2y + 5| = 17$

Which two equations should she use to find the solutions?

(A) $-2y + 5 = 17$
$-2y - 5 = 17$

(B) $-2y + 5 = 17$
$-2y + 5 = -17$

(C) $-2y + 5 = 17$
$2y - 5 = -17$

(D) $2y + 5 = 17$
$-2y - 5 = -17$

---

29 Solve the following equation for x. If necessary leave your answer in simplified fraction form.

$$\frac{3x + 8}{5} = \frac{1 - 2x}{2}$$

---

30 The coeffiecient for **6m + 7** is **m**

(A) True

(B) False

---

31 Select **ALL** the values that make the inequality true: **n < -15**

[A] -25

[B] -19

[C] -1

[D] -30

---

32 Simplify the following expression by combining like terms:

$-2 + 6x + z - 2x + 8 - 4z$

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33 Solve: $-3x - 7 \leq 11$

(A) $x \geq -2$

(B) $x \leq -\frac{1}{2}$

(C) $x \leq -2$

(D) $x \geq -6$

---

34 What is the difference $(4x^5 - 3x^3 + 2x^2 - 7) - (x^4 + 2x^3 - 4x - 3)$

(A) $5x^9 - x^6 - 2x^3 - 10$

(B) $3x^5 - 5x^3 - 2x^2 - 4$

(C) $4x^5 - x^4 - x^3 + 2x - 4x - 10$

(D) $4x^5 - x^4 - 5x^3 + 2x^2 + 4x - 4$

---

35 **Solve the equation. Show all work on your paper.**

$32 = 4y$

y =

---

36 Which polynomial has a leading coefficient of 4 and a degree of 3?

(A) $3x^4 - 2x^2 + 4x - 7$

(B) $4 + x - 4x^2 + 5x^3$

(C) $4x^4 - 3x^3 + 2x^2$

(D) $2x + x^2 + 4x^3$

---

37 For the graph

Which compound inequalities represent the graph?

A $-3 < x \leq 3$

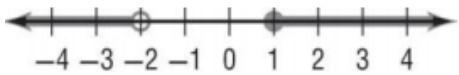
B $-3 \leq x < 3$

C $x > -3 \text{ or } x \leq 3$

D $3 < x \leq -3$

---

38 For the graph



Which compound inequalities represent the graph?

A $-2 < x \geq 1$

B $x < -2 \text{ or } x \geq 1$

C $x \leq -2 \text{ or } x > 1$

D $x < -2 \text{ and } x \geq 1$

E $-2 < x \leq 1$

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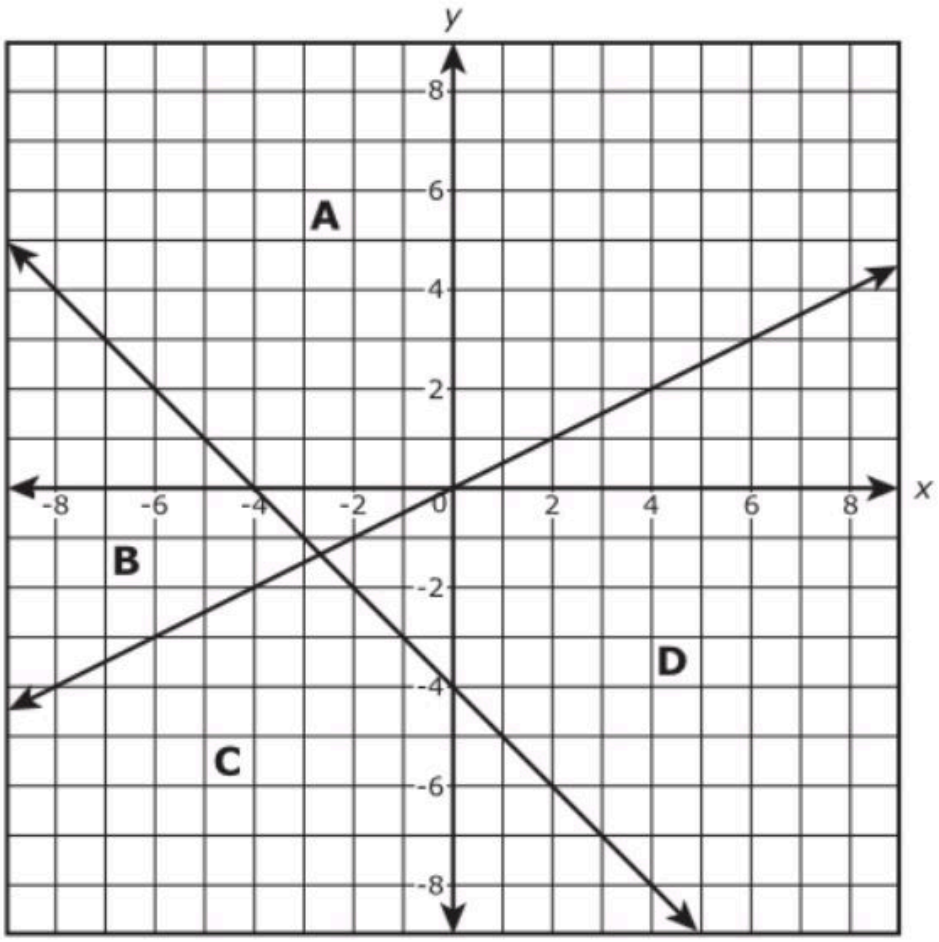
39 The system of inequalities $\begin{cases} x + y \leqslant -4 \\ 7x - 14y \leq 0 \end{cases}$ is graphed. Which region below represents the solution to the system of linear inequalities?



(A) Region A

(B) Region B

(C) Region C

(D) Region D

40 The inequality $|2x - 5| > 8$ can be written as which two inequalities?

A $2x - 5 > 8$

B $2x - 5 < 8$

C $2x + 5 < 8$

D $2x + 5 < 8$

E $2x - 5 > -8$

F $2x - 5 < -8$

G $2x + 5 > -8$

H $2x + 5 < -8$

---

41 The equation of a circle is shown.

$$x^2 + y^2 - 10x + 8y + 16 = 0$$

What is the radius of the circle?

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42 A home owner's monthly gas bill is $\$17.15$. She paid an initial deposit of $\$75$ to the gas company.

How much will the home owner pay in all after 3 months of service?

(A) $\$92.15$

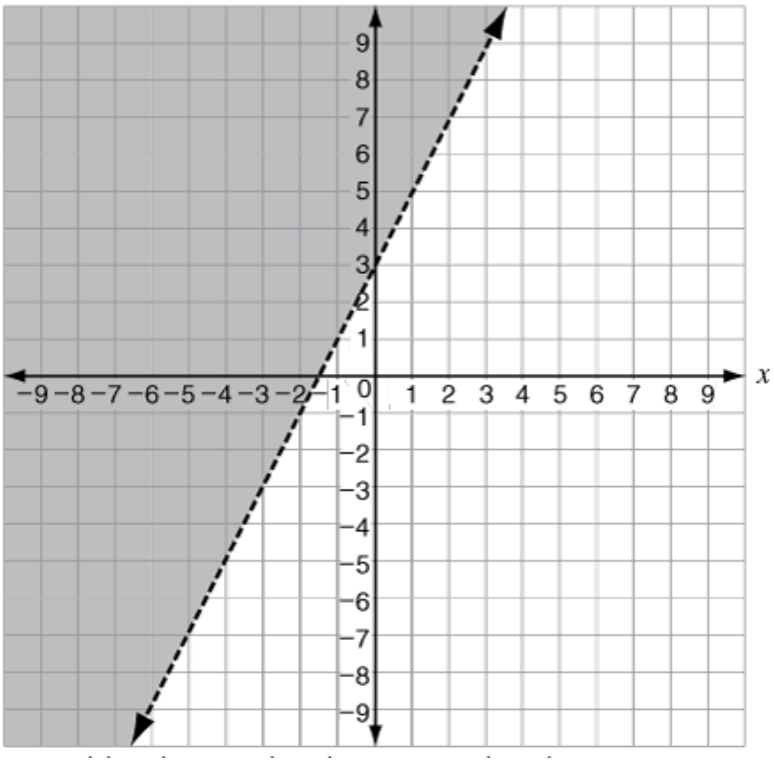
(B) $\$126.45$

(C) $\$225.00$

(D) $\$242.15$

---

43 Which of the following inequalities represents the graph below?



(A) $y \geq 2x + 3$

(B) $y \leq 2x + 3$

(C) $y > 2x + 3$

(D) $y < 2x + 3$

---

44 What is the y-intercept of the quadratic function represented below?

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

(A) -20

(B) -10

(C) -2

(D) 2

(E) 10

(F) 20

---

45 Given $f(x) = 3x + 4$, find $f(2)$.

(A) 6

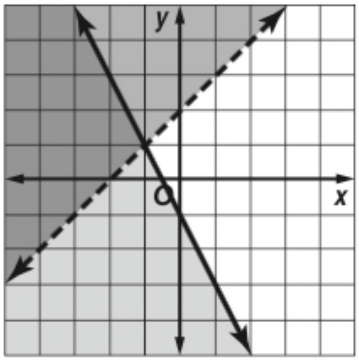
(B) 7

(C) 10

(D) 14

---

46 Which system of inequalities is graphed below?



(A) $\begin{cases} y > x + 2 \\ y \geq -2x - 1 \end{cases}$

(B) $\begin{cases} y > x + 2 \\ y \leq -2x - 1 \end{cases}$

(C) $\begin{cases} y \geq x + 2 \\ y < -2x - 1 \end{cases}$

(D) $\begin{cases} y \leq x + 2 \\ y > -2x - 1 \end{cases}$

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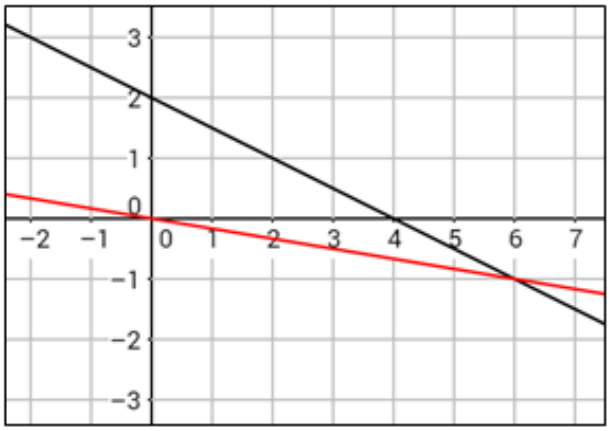
47 What is the solution to the system of equations graphed below?



Solution: _____

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48 What values of d are solutions of the equation below?

$$|3d| = 30$$

(A) $d = 2, d = -2$

(B) $d = 6, d = -6$

(C) $d = 10, d = -10$

(D) $d = 14, d = -14$

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49 The knitting club sold 40 scarves and hats at a winter festival and made $700 from the sales. They charged $18 for each scarf and $14 for each hat. If s represents the number of scarves sold and h represents the number of hats sold, which system of equations represents the constraints in this situation?

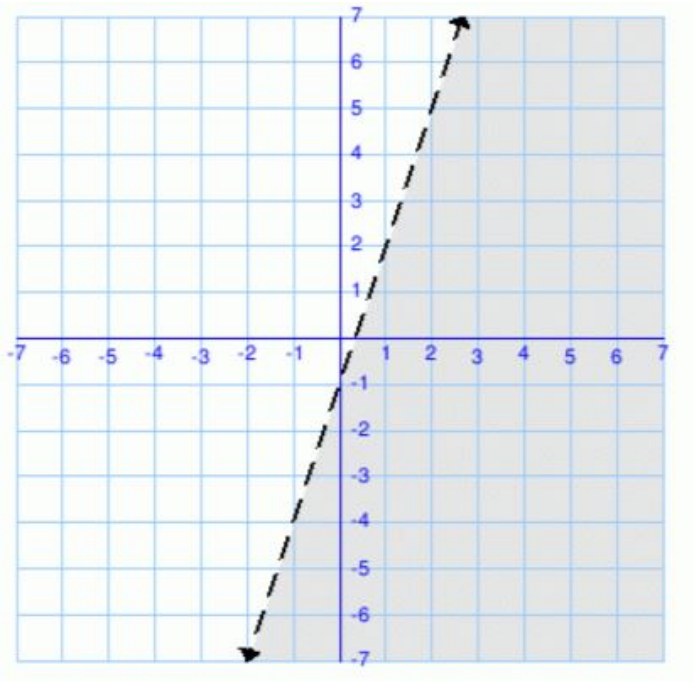
(A) $\begin{cases} 40s + h = 700 \\ 18s + 14h = 700 \end{cases}$

(B) $\begin{cases} 18s + 14h = 40 \\ s + h = 700 \end{cases}$

(C) $\begin{cases} s + h = 40 \\ 18s + 14h = 700 \end{cases}$

(D) $\begin{cases} 40(s + h) = 700 \\ 18s = 14h \end{cases}$

50



Which of the following linear inequalities matches the graph above?

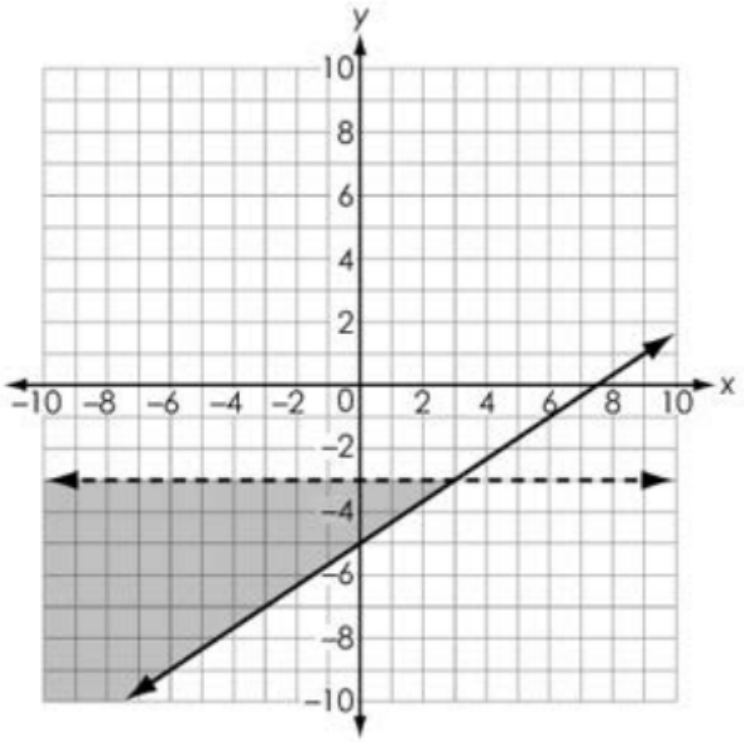
(A) $y > 2x - 1$

(B) $y < 1/3x - 1$

(C) $y < 3x - 1$

(D) $y > 1/3x - 1$

51 The graph of a system of inequalities is shown.



Create the system of inequalities that is represented by the graph.

52 A system of equations is given.

$$\begin{cases} y + 2 = 3(x - 1) \\ y = -2x + 10 \end{cases}$$

What is the solution to the system?

(,)

53 Solve the following absolute value equation.

$2\left|3x-4\right|+8=6$

(A) x={$\frac{5}{3}$,1}

(B) x= {2,4}

(C) No solution

(D) x = All Real Numbers

---

54 A system of equations is given.

$y=x^2-9$

$y=-2x-1$

What is one solution to the system of equations?

([ ] , [ ])

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55 This item has three parts.

(a) Eleanor incorrectly solves the equation $\frac{1}{2}(x+18) = 4(2x-6) - 9x$.

Part A

Select the first equation in which Eleanor makes an error.

Step	Equation
Given	$\frac{1}{2}(x+18) = 4(2x-6) - 9x$
1.	$x + 18 = 8(2x - 6) - 9x$
2.	$x + 18 = 16x - 48 - 9x$
3.	$x + 18 = 7x - 48$
4.	$66 = 6x$
5.	$x = 11$

(A) Step 1

(B) Step 2

(C) Step 3

(D) Step 4

(E) Step 5

(b)

Part B

Create an equation to correct Eleanor's error identified in part A.

Part C

What is the correct solution to $\frac{1}{2}(x+18) = 4(2x-6) - 9x$?

$x =$

56 The equation shown is used to find the force of gravity, F, between two objects, where

- G is the gravitational constant,
- m_1 and m_2 are the masses of the two objects, and
- r is the distance between the two objects.

$$F = \frac{Gm_1m_2}{r^2}$$

Which equation correctly shows the distance between the two objects?

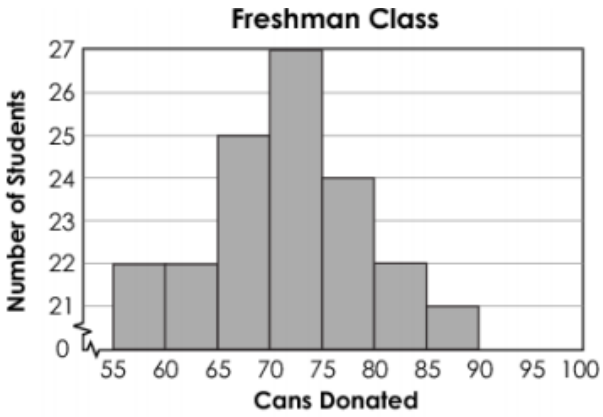
(A) $r = \frac{\sqrt{F}}{Gm_1m_2}$

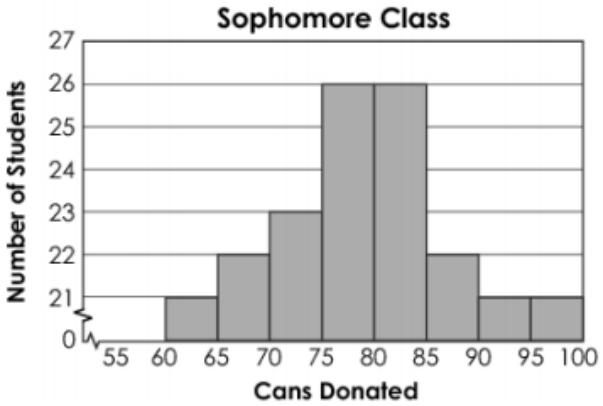
(B) $r = \frac{\sqrt{Gm_1m_2}}{F}$

(C) $r = \sqrt{\frac{F}{Gm_1m_2}}$

(D) $r = \sqrt{\frac{Gm_1m_2}{F}}$

57





The histograms shown display the number of cans of food donated by students in the freshman class and the sophomore class at a school.
Which statement is true?

(A) The freshman class has a lesser mean number of cans donated than the sophomore class.

(B) The freshman class has the same median number of cans donated as the sophomore class.

(C) The freshman class has a greater mean number of cans donated than the sophomore class.

(D) The freshman class has a greater median number of cans donated than the sophomore class.

---

58 Which expression is equivalent to $\frac{45m^{-6}p^2v^{12}}{15m^{-2}p^8v^{-4}}$ all values of m, p , and v where the expression is defined ?

(A) $\frac{3v^8}{m^8p^6}$

(B) $\frac{3v^{16}}{m^4p^6}$

(C) $\frac{30m^3}{p^4v^3}$

(D) $\frac{30v^3}{m^3p^4}$

---

59 Write an equation of a circle with a radius of 5 and a center at $(2, 3)$.

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60 Identify each part of the circle given the equation .

$(x-6)^2+(y-9)^2=225$

Center : (,)

Radius:

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61 The equation of a circle is shown.

$x^2 + y^2 - 10x + 8y + 16 = 0$

What is the radius of the circle?

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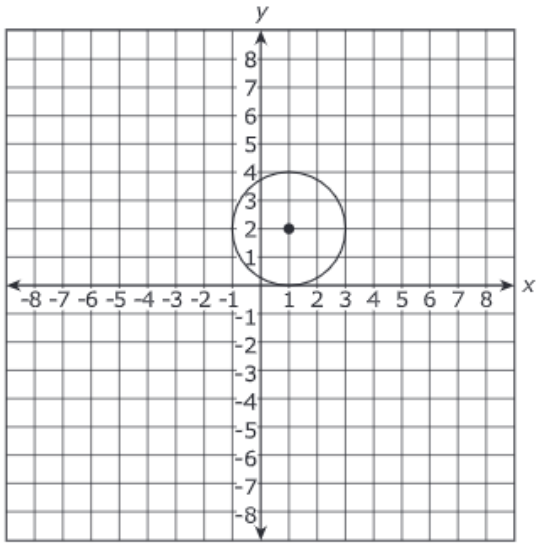
62 A circle is represented by the equation shown.

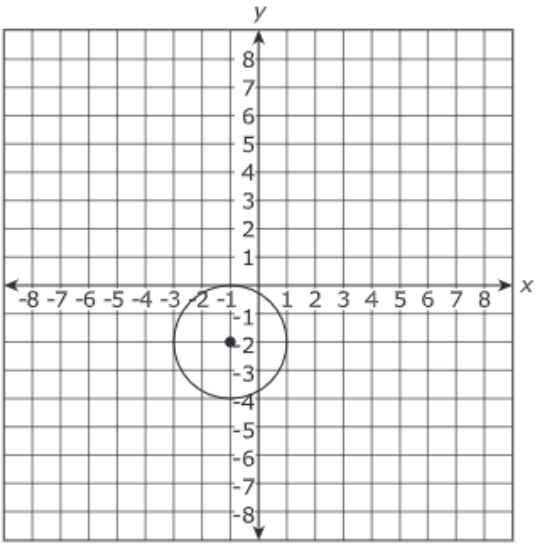
$$(x-1)^2+(y-2)^2=4$$

Which graph best represents this circle?

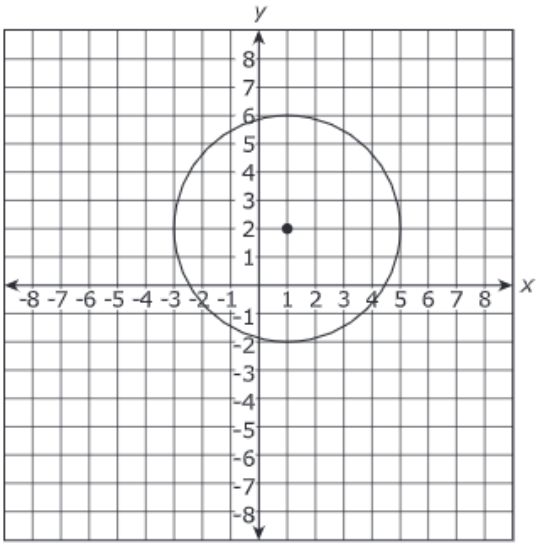
A


y
x
8 7 6 5 4 3 2 1
-8 -7 -6 -5 -4 -3 -2 -1
1 2 3 4 5 6 7 8
-1 -2 -3 -4 -5 -6 -7 -8

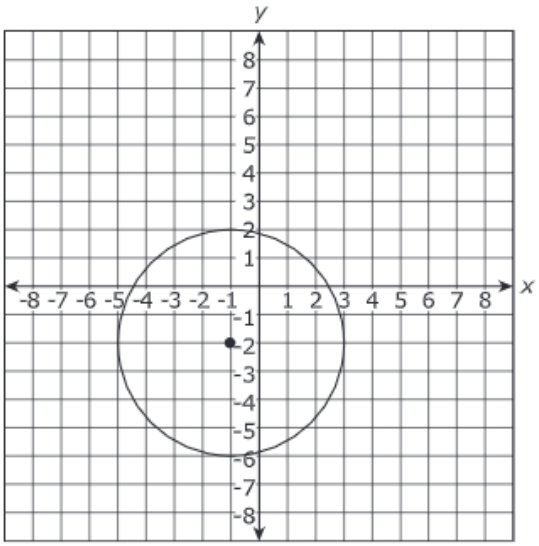
B


y
x
8 7 6 5 4 3 2 1
-8 -7 -6 -5 -4 -3 -2 -1
1 2 3 4 5 6 7 8
-1 -2 -3 -4 -5 -6 -7 -8

C


y
x
8 7 6 5 4 3 2 1
-8 -7 -6 -5 -4 -3 -2 -1
1 2 3 4 5 6 7 8
-1 -2 -3 -4 -5 -6 -7 -8

(D)



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63 What is the equation of a parabola with vertex (-5,6) and a=3

(A) $y = 3(x+5)^2 - 6$

(B) $y = 3(x+5)^2 + 6$

(C) $y = 5(x-3)^2 - 6$

(D) $y = 3(x-6)^2 - 5$

---

64 If $y = -x^2 - 8x - 20$ is the equation of a parabola. Find the the $x-$ coordinate of the vertex of parabola.

Answer: [ ] .

---

65 What is the equation of a parabola with vertex (-5,6) and a=3

(A) $y = 3(x+5)^2 - 6$

(B) $y = 3(x+5)^2 + 6$

(C) $y = 5(x-3)^2 - 6$

(D) $y = 3(x-6)^2 - 5$

---

66 Use the definition of a parabola as the set of points in the xy-plane that are the same distance from a point F, called the focus, and a line d, called the directrix, to find the equation of a parabola with focus $(0,1)$ and directrix $y = -1$.

$y =$ [ ]

---

67 The equation of a parabola is $y = x^2 + 4x + 16$. Write the equation in the vertex form.

---

68 Write the equation of a parabola with focus (-3,9) and directix x = 0.

Start equation with x=0.

---

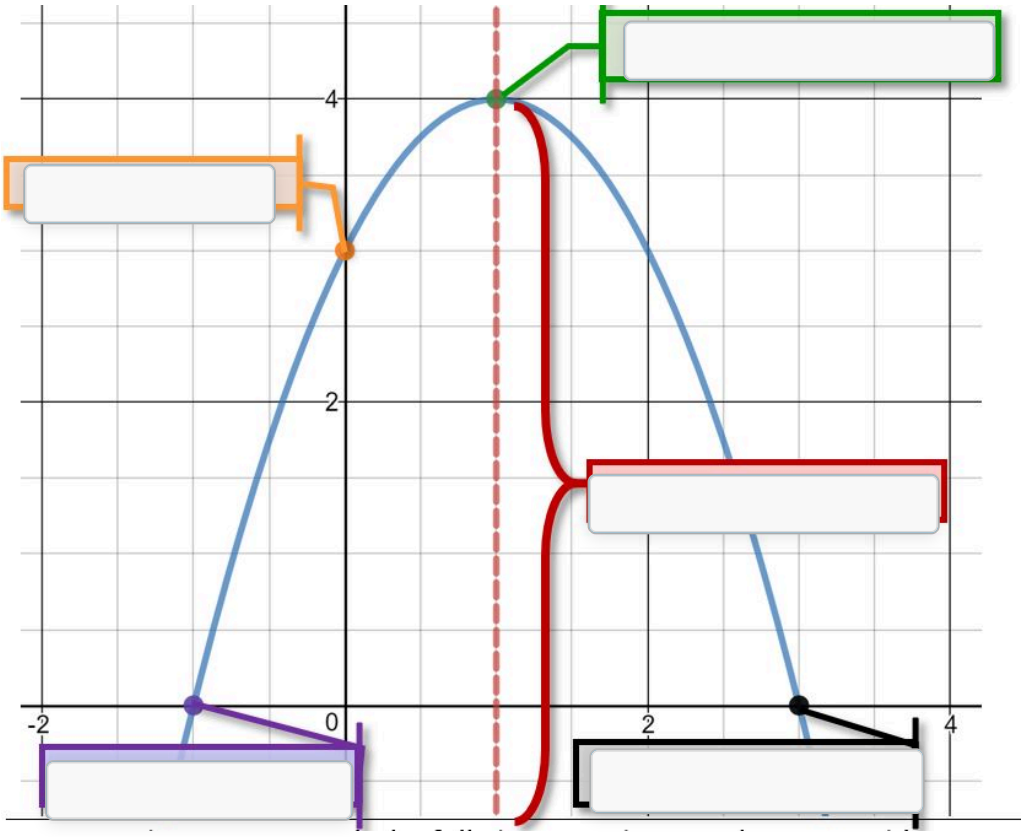
69 A parabola has its vertex at $(2, -3)$ and its y-intercept at $(0, 5)$.

Write an equation of the parabola in the form $y = a\,(x - h)^2 + k$

$y =$

---

70 Label the x-intercept, y-intercept, vertex and axis of symmetry in the following graph



71 The directrix of the parabola $12(y+3)=(x-4)^2$ has the equation $y=-6$. Find the coordinates of the focus of the parabola.

---

72 **Which is the equation of the parabola with focus $(2,5)$ and directrix $y=3$?**

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

(B) $y=-x^2+5x-20$

(C) $y=\frac{1}{4}x^2-x+5$

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

---

73 How is this logarithm written in exponential form?
$\log_3(81)=x$

(A) $x^3=81$

(B) $3x=81$

(C) $3^x=81$

(D) $x=3^{81}$

---

74 Simplify/condense the logarithm $\log(4)+2\cdot\log(x)$ into a single logarithm.

---

75 Solve the exponential expression to the nearest thousandth. $8(5^x)-14=78$

---

76 Select all the solutions to the equation $\ln(x^2) = \ln(24 - 2x)$

A e

B 0

C -6

D 8

E 4

---

77 Add together the rational expressions and write your answer in simplest form...

$$\frac{3x-4}{x^2-9} + \frac{2x-1}{x+3}$$

---

78 Use properties of logarithms to solve the equation for x.

$\log(5x+3) = 18$

A $x = \frac{21}{5}$

B $x = \frac{9}{4}$

C $x = 3$

D $x = \frac{e^{18}-3}{5}$

E $x = \frac{10^{18}-3}{5}$

---

79 Use properties of logarithms to solve the equation for x.

$\log_2(x+3) - \log_2(x+7) = 2$

(A) No solution.

(B) $x = 0$

(C) $x = 1$

(D) $x = -\frac{7}{6}$

(E) $x = -\frac{25}{3}$

---

80 Change the following exponent into a logarithm $64 = 4^3$

(A) $\log_3 4 = 64$

(B) $\log_4 64 = 3$

(C) $\log_{64} 3 = 4$

(D) $\log_4 3 = 64$

---

81 What would be the remainder for the polynomial division $(3x^3 - x^2 - 7x + 6) \div (x + 2)$

(A) -8

(B) -4

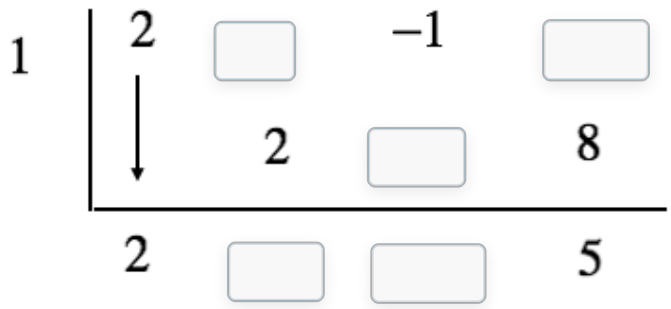
(C) 0

(D) 8

---

82 Complete the division problem using synthetic division.

$$(2x^3+7x^2-x-3)\div(x-1)$$

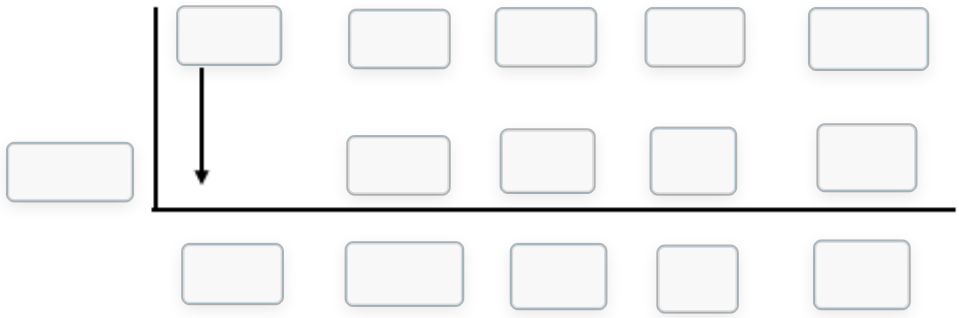


$$=\square x^2+\square x+\square+\frac{\square}{\square}$$

---

83 Complete the division problem using synthetic division.

$$(3x^4+2x^3-9x^2-10x-8)\div(x-2)$$



$$=\square x^3+\square x^2+\square x+\square$$

84 Divide using Synthetic division

$(x^5 - 3x^4 - 7x + 18) \div (x - 3)$

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85 Use synthetic division to divide $6x^3 - 10x^2 + 20$ by $x + 1$.

(A) $6x^2 - 16x + 16 + \frac{4}{x + 1}$

(B) $6x^2 - x + 16 + \frac{6}{x + 1}$

(C) $6x^2 - 16x + 16 - \frac{4}{x + 1}$

(D) $6x^2 - 16x - 16 + \frac{5}{x + 1}$

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86 Tiana is told to carry out the following polynomial division:

$(2x^3 + 4x^2 - 9x - 18) \div (x + 5)$

Quotient (Answer without remainder)

Remainder (written as a fraction)
