Mr. Espinosa **March 2020 Packet**

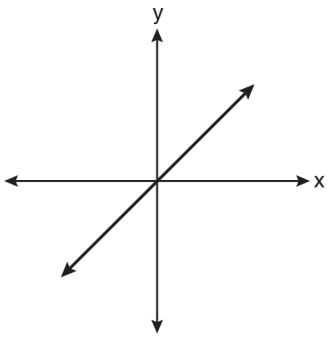
Name: _____ **Date:** _____

All work must be shown in order to receive full credit!

1. Solve for s: $7s + 4(3 - s) = 18$

2. Which graph represents a linear function?

A.



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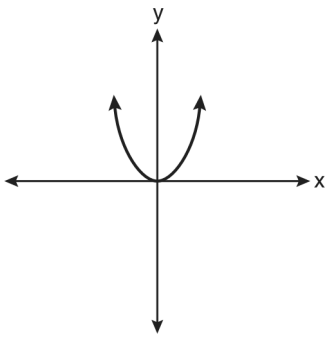

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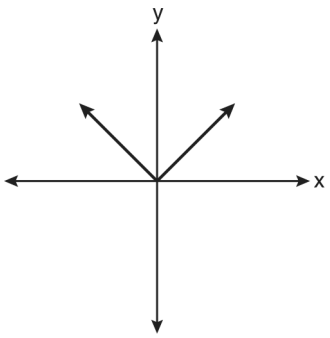
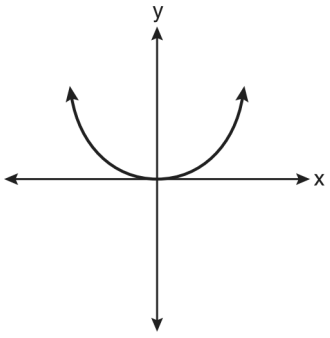


D.



3. Solve the following system of equations for x:

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

4. Solve the following system of equations for x:

$$3x + 3y = 21$$
$$6x - 3y = 6$$

5. Solve algebraically and check:

$$4x + 3y = 12$$
$$-2x + y = -16$$

6. Which table represents a function?

A.

x	y
2	−3
3	0
4	−3
2	1

B.

x	y
1	2
1	3
1	4
1	5

C.

x	y
−3	0
−2	1
−3	2
2	3

D.

x	y
−2	−4
0	2
2	4
4	6

7. What is the solution for the following system of equations?

$$2x + y = 7$$
$$x - 2y = 6$$

A. $(3, 1)$ B. $(1, 3)$

C. $(-1, 4)$ D. $(4, -1)$

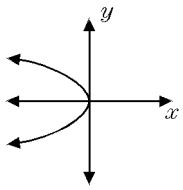
8. Solve the following system of equations for x:

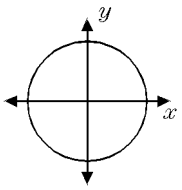
$$4x + y = 11$$
$$x + y = 2$$

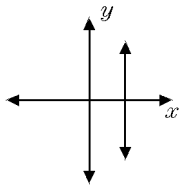
9. Solve for x: $5x + 7 = 2x - 2$

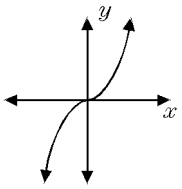
10. Solve for x: $2x - 5 = 4x + 7$

11. Which graph represents a function?

A. 

B. 

C. 

D. 

12. Solve for x: $3(x + 5) + x = 7$

13. Solve for y: $6 - 3y = -9 + 2y$

14. Solve for y: $2.5(y + 2) - 1.5y = 6$.

15. Solve for y: $2(5 - y) = 5(y - 5)$

16. Solve for x: $\frac{4}{6} = \frac{x}{15}$

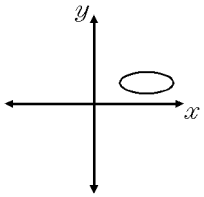
17. Solve for x:

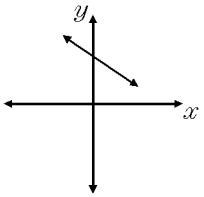
$$\frac{7}{2} = \frac{x}{3}$$

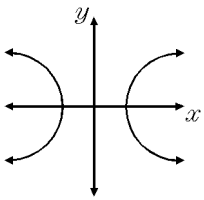
18. Solve for p in terms of r, s, and t: $rp + s = t$

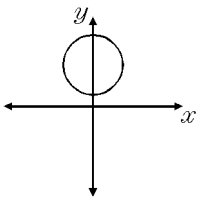
19. Solve for r in terms of C and π: $C = 2\pi r$

20. Which graph of a relation is also a function?

A. 

B. 

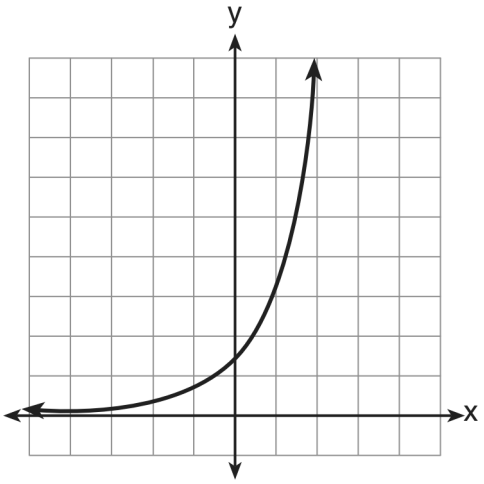
C. 

D. 

21. Which property is illustrated by $\square(\triangle + \bigcirc) = \square\triangle + \square\bigcirc$?

A. distributive
B. associative
C. commutative
D. transitive

22. Which type of function is graphed below?



A. linear
B. quadratic
C. exponential
D. absolute value

23. Which equation illustrates the distributive property?

A. $5(a + b) = 5a + 5b$
B. $a + b = b + a$
C. $a + (b + c) = (a + b) + c$
D. $a + 0 = a$

24. If M and A represent integers, $M + A = A + M$ is an example of which property?

A. commutative
B. associative
C. distributive
D. closure

25. Jill invests \$400 in a savings bond. The value of the bond, $V(x)$, in hundreds of dollars after x years is illustrated in the table below.

x	$V(x)$
0	4
1	5.4
2	7.29
3	9.84

Which equation and statement illustrate the approximate value of the bond in hundreds of dollars over time in years?

A. $V(x) = 4(0.65)^x$, and it grows.
B. $V(x) = 4(0.65)^x$, and it decays.
C. $V(x) = 4(1.35)^x$, and it grows.
D. $V(x) = 4(1.35)^x$, and it decays.

26. If $f(x) = 4x + 5$, what is the value of $f(-3)$?

A. -2
B. -7
C. 17
D. 4

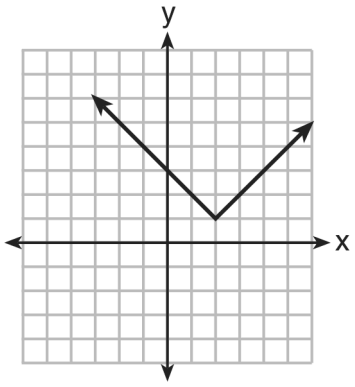
27. Which relation does not represent a function?

A.

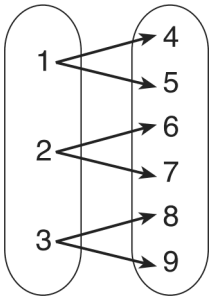
x	1	2	3	4	5	6
y	3.2	4	5.1	6	7.4	8.8

B. $y = 3\sqrt{x+1} - 2$

C.



D.



28. Materials A and B decay over time. The function for the amount of material A is $A(t) = 1000(0.5)^{2t}$ and for the amount of material B is $B(t) = 1000(0.25)^{t}$, where t represents time in days. On which day will the amounts of material be equal?

A. initial day, only
B. day 2, only
C. day 5, only
D. every day

29. The table below represents the height of a bird above the ground during flight, with $P(t)$ representing height in feet and t representing time in seconds.

t	$P(t)$
0	6.71
3	6.26
4	6
9	3.41

Calculate the average rate of change from 3 to 9 seconds, in feet per second.

30. A car was purchased for $25,000. Research shows that the car has an average yearly depreciation rate of 18.5%.

Create a function that will determine the value, $V(t)$, of the car t years after purchase.

Determine, to the *nearest cent*, how much the car will depreciate from year 3 to year 4.

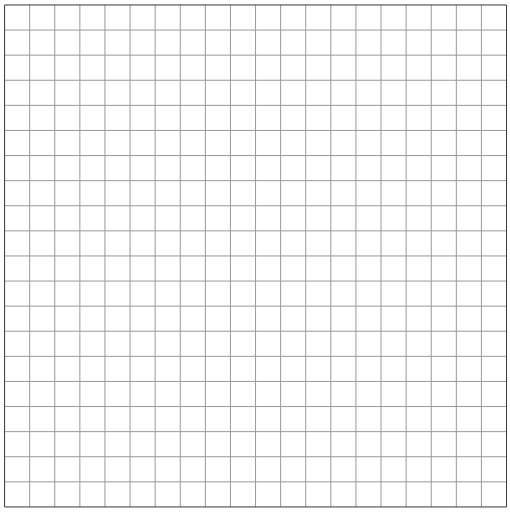
31. Caleb claims that the ordered pairs shown in the table below are from a nonlinear function.

x	$f(x)$
0	2
1	4
2	8
3	16

State if Caleb is correct. Explain your reasoning.

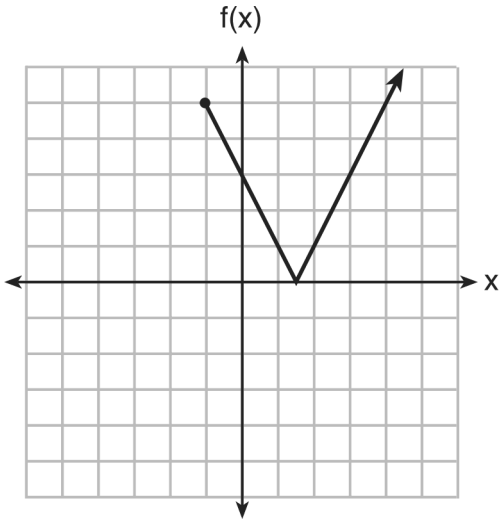
32. a) Solve the following system of inequalities graphically on the grid below and label the solution S.

$3x + 4y > 20$
$x < 3y - 18$



b) Is the point $(3, 7)$ in the solution set? Explain your answer.

33. The function $f(x)$ is graphed below.



The domain of this function is

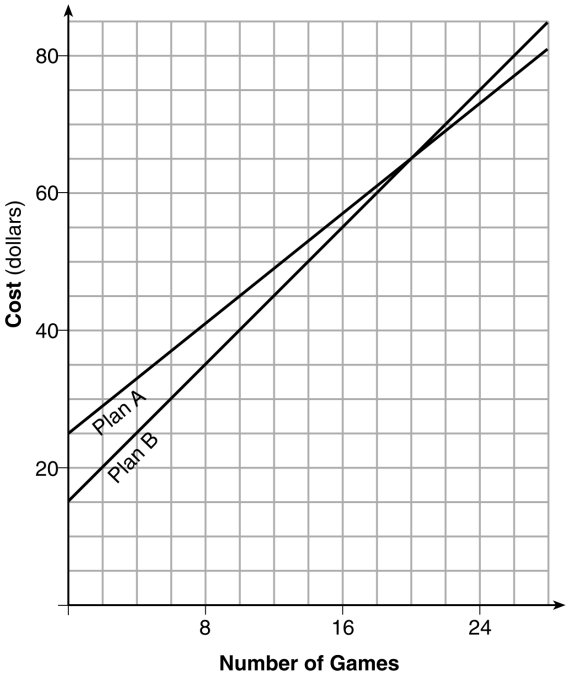
A. all positive real numbers

B. all positive integers

C. $x \geq 0$

D. $x \geq -1$

34. The graph below models the cost of renting video games with a membership in Plan *A* and Plan *B*.



a) Explain why Plan *B* is the better choice for Dylan if he only has \$50 to spend on video games, including a membership fee.

b) Bobby wants to spend \$65 on video games, including a membership fee. Which plan should he choose? Explain your answer.

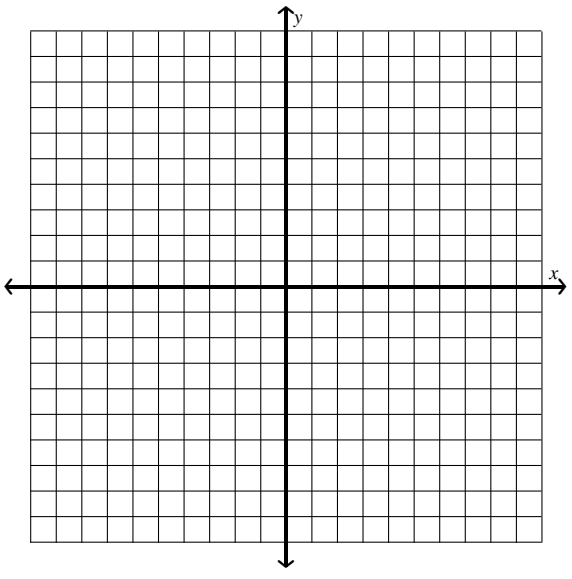
35. A blizzard occurred on the East Coast during January, 2016. Snowfall totals from the storm were recorded for Washington, D.C. and are shown in the table below.

Washington, D.C.	
Time	**Snow** (inches)
1 am	1
3 am	5
6 am	11
12 noon	33
3 pm	36

Which interval, 1 am to 12 noon or 6 am to 3 pm, has the greatest rate of snowfall, in inches per hour? Justify your answer.

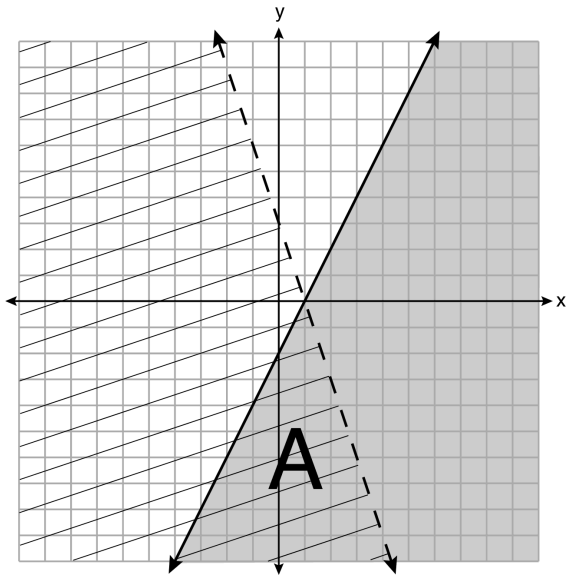
36. On the set of axes below, graph the following system of inequalities:

$$2x + y \geq 8$$
$$y - 5 < 3x$$



Determine if the point $(1, 8)$ is in the solution set. Explain your answer.

37. A system of inequalities is graphed on the set of axes below.



State the system of inequalities represented by the graph.

State what region *A* represents.

State what the entire gray region represents.

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1.
Answer: 2
Points: 1

2.
Answer: A
Points: 1

3.
Answer: 4
Points: 1

4.
Answer: 3
Points: 1

5.
Answer: $x = 6,\ y = -4$
Points: 1

6.
Answer: D
Points: 1

7.
Answer: D
Points: 1

8.
Answer: 3
Points: 1

9.
Answer: -3
Points: 1

10.
Answer: -6
Points: 1

11.
Answer: D
Points: 1

12.
Answer: -2
Points: 1

13.
Answer: 3
Points: 1

14.
Answer: 1
Points: 1

15.
Answer: 5
Points: 1

16.
Answer: 10
Points: 1

17.
Answer: 10.5
Points: 1

18.
Answer: $\frac{t-s}{r}$
Points: 1

19.
Answer: $\frac{C}{2\pi}$
Points: 1

20.
Answer: B
Points: 1

21.
Answer: A
Points: 1

22.
Answer: C
Points: 1

23.
Answer: A
Points: 1

24.
Answer: A
Points: 1

25.
Answer: C
Points: 1

26.
Answer: B
Points: 1

27.
Answer: D
Points: 1

28.
Answer: D
Points: 1

29.
Answer: -0.475
Points: 1

30.
Answer: $V(t) = 25{,}000(1 - 0.185)^t$; 2503.71
Points: 1

31.
Answer: Caleb is correct.
Points: 1

32.
Answer: [graph]; no
Points: 1

33.
Answer: D
Points: 1

34.
Answer: With plan B he gets 2 more video games with \$50; They both offer the same amount of games for \$65.
Points: 1

35.
Answer: from 1 am to 12 noon
Points: 1

36.
Answer: [graph]
Points: 1

37.
Answer: $y < -3x + 3$ and $y \leq 2x - 2$, solution to the system, solution to $y \leq 2x - 2$ only
Points: 1