Algebra 1 2014
Final Exam Review

Name: KEY

Unit 1 - Foundations for Algebra p. 5-22

1. Write the second step of the solution process.

Step 1	$4(5x-7)+2=34$	
Step 2		$20x-28+2=34$
Step 3	$20x-26=34$	
Step 4	$20x=60$	
Step 5	$x=3$	

2. Which situation best describes the expression $75+15x$?
   A. An electrician charges $15 to come to your house and additional $75 per hour.
   B. The set up fee for making T-shirts is $15. Each shirt costs $75.
   C. John has $75 in his savings account. He spends 15 dollars per week.
   D. Danielle gets $75 for her birthday from her parents and then an additional $15 from anyone who comes to her party.

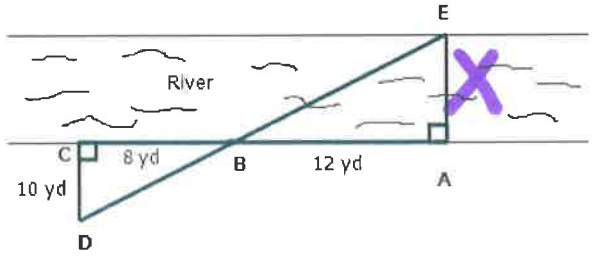
3. If $2x-3=3x-7$, what is the value of x?

$-2x \quad -2x$

$-3=x-7$
$+7 \quad +7$

$4=x$

4. A man works at a national park. He needs to measure the width of the river in order to run a safety cable across. He marks distances as shown in the figure. What is the width of the river?



$\frac{10}{x}=\frac{8}{12}$

$120=8x$

15yd

5. Simplify the algebraic expression: $2(5x+4)+3x-(7-x)$

$10x+8+3x-7+x$

$14x+1$

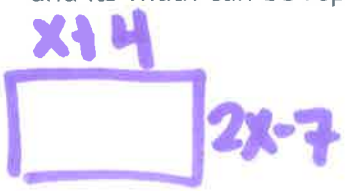
6. Solve the following inequality and graph the solution on a number line. $4 \geq -2x$

Divide by - → flip sign

$\frac{4}{-2} \geq \frac{-2x}{-2}$

$-2 \leq x$

7. The perimeter of a rectangle is 42 centimeters. The length of the rectangle can be represented by (x+4) and its width can be represented by (2x-7). What are the dimensions of this rectangle in centimeters?



$P=2l+2w$

$42=2(x+4)+2(2x-7)$

$42=2x+8+4x-14$

$48=6x$

$x=6$

length: 10cm
width: 5cm

Unit 2 - Foundations for Functions p. 23 - 32

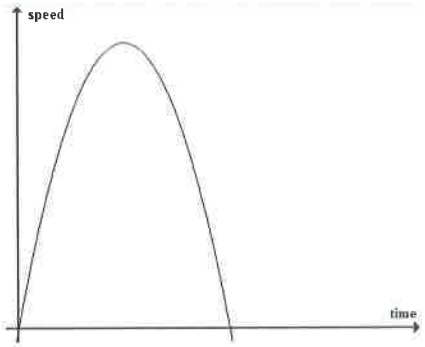
8. Which expression can be used to find the nth term in the following sequence, where n represents a number's position in the sequence?

A. $3n + 4$
B. $4n + 1$
C. $n + 4$
D. $5n$

Term	1	3	6	9	n
Value	5	13	25	37	

Plug in answer choices

9. The graph below best represents which of the following relationships between speed and time elapsed?



A. Carol rides her bike steadily up the street and then takes a break and then quickly rides back
B. A woman climbs a hill at a steady pace and then starts to run down one side.
C. Mike runs up a hill and then runs back down the hill.
D. Bill rode his bicycle down a hill and then slowly came to a stop.

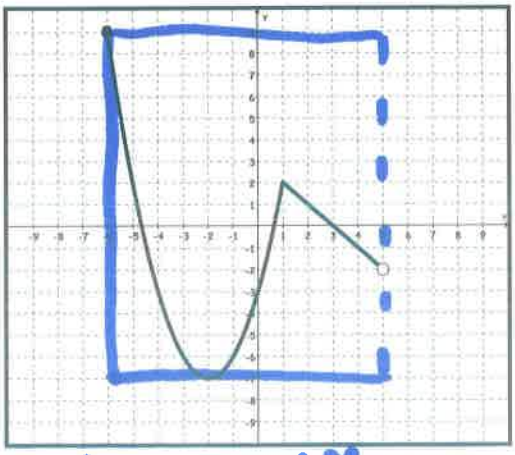
10. Solve the following equation for y:

$2 \cdot \frac{3x - y}{2} = -3 \cdot 2$

$3x - y = -6$
$-3x \quad -3x$
$\frac{-y}{-1} = \frac{-3x}{-1} - \frac{6}{-1}$

$y = 3x + 6$

11. What is the domain and range of the function shown in the graph?

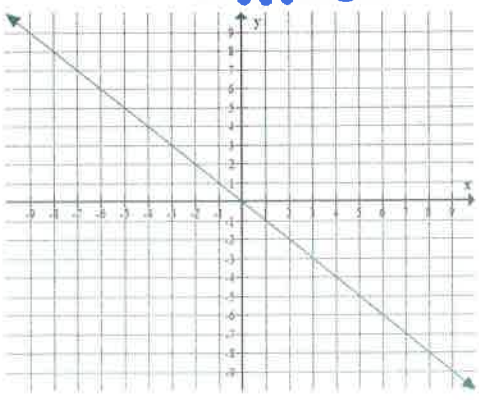


Domain: $-6 \leq x < 5$
Range: $-7 \leq y \leq 9$

12. Which of the following equations is the parent function for the given graph?

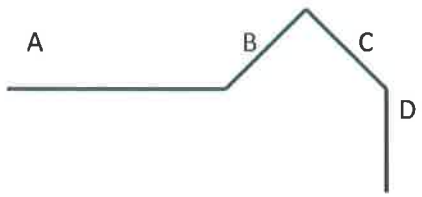
Linear

A. $y = x$
B. $y = -x$
C. $y = x2$
D. $y = x3$



Unit 3 Linear Functions p. 33-61

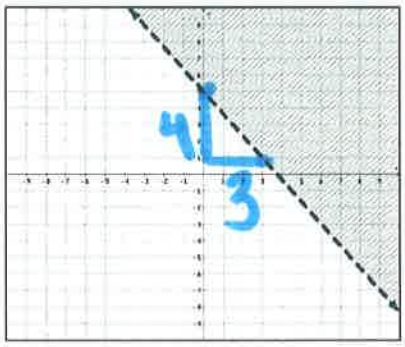
13. Label each line segment as having a positive, negative, zero, or undefined slope.



A: zero
B: positive
C: negative
D: undefined

HOY VUX (slope dude)

14. Write the inequality for the graph shown below.



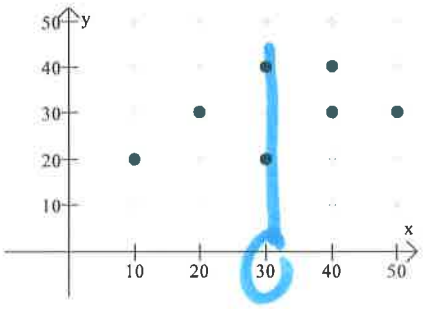
shaded up
dotted

$y > \frac{-4}{3}x + 5$

15. Which of the following represents a function?

no repeating x's

X

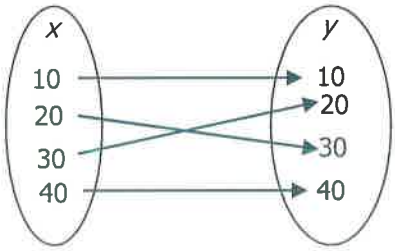


X B. {(10, 20), (20, 30), (30, 20), (30, 40)}

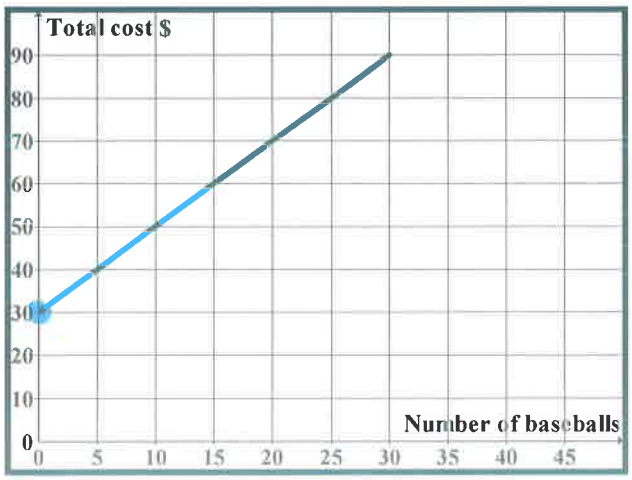
X C.

x	20	30	40	30
y	10	20	30	40

O D.



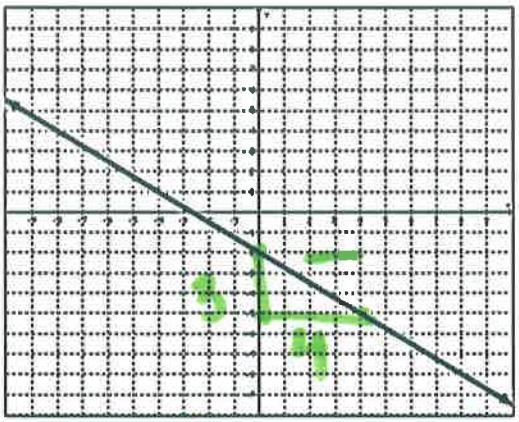
16. Coach is placing an order for baseballs to prepare for the upcoming season. What could the *y*-intercept mean in the graph below?



initial cost was $30

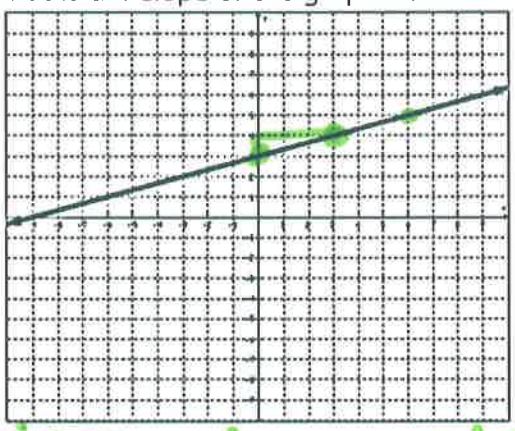
Unit 4 Writing Equations of Lines p. 61-68

17. Write the equation of the graph below in slope-intercept and standard form.



Slope-Int. $y = -\frac{3}{4}x - 2$ Standard: $3x + 4y = -8$

18. What is the slope of the graph below?



$\frac{\text{RISE}}{\text{RUN}} = \frac{1}{3}$ positive

19. Write the equation that passes through the points (5, 6) and (3, 10), in slope-intercept form.

x	y
5	6
3	10

Lin Reg

$y = -2x + 16$

20. A line has a slope of 2.

Write the slope of a line that is parallel

2 (same)

Write the slope of a line that is perpendicular

$-\frac{1}{2}$ (flippin opposites)

Unit 5 Scatterplots p. 69-74

21. Which of these situations represents a negative correlation?

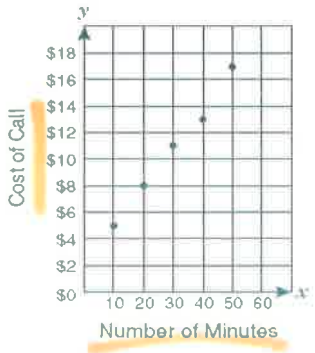
A Number of words typed per minute and the number of errors while typing ↑↑

B The temperature outside and the cost of the gas bill ↑↓

C The age of students and the number of sit ups they can do none

D The temperature outside and the number of coats sold ↑↓

22. The scatterplot below shows the cost of phone calls Jeff made to his brother overseas in relation to the number of minutes per phone call.



According to the data, what is the relationship between the number of minutes of a phone call and the cost of the call?

A As Jeff made more phone calls, the cost of the phone calls increased.

B As Jeff made fewer phone calls, the cost of the phone calls decreased.

C As Jeff decreased the number of minutes on the phone, the number of phone calls decreased.

D As Jeff increased the number of minutes on the phone, the cost of the phone calls increased.

Unit 6 Systems p.75-88

23. Determine the number of solutions for the system.

$y = -4x - 2$
$4x + y = 5$

y=-4x-2
y=-4x+5

one DIFF. SLOPE | none SAME SLOPE | infinite SAME LINE

NONE

24. At Fuzzy's Taco Shack, you can buy two tacos and three burritos for $10.05. The cost for an order of six tacos and two burritos is $12.72. Write the system of equations that would allow you to find the price of one taco, *t* and one burrito, *b*?

2t + 3b = 10.05
6t + 2b = 12.72

25. At the school basketball game there were a total of 358 tickets sold. Student tickets were $1.50 and adult tickets were $3.25. If the school made $752.25 on ticket sales, how many student and adult tickets were sold?

A. 123 adult tickets, 235 student tickets.
B. 271 adult tickets, 87 student tickets.
C. 258 adult tickets, 100 student tickets.
D. 158 adult tickets, 200 student tickets.

A + S = 358
3.25A + 1.5S = 752.25
Plug in choices

26. The equation of 2 lines are shown below.

$y = 3x + 6$
$2x + y = 1$

What are the coordinates of the point of intersection?

use substitution or graphing

(-1, 3)

y=3x+6
y=-2x+1

2nd TRACE
5:intersect

Unit 7 Polynomials p.89-96

$$\left(\frac{x^{120}y^{23}z^{320}}{2^0x^{97}y^{26}z^{46}}\right)^0$$

Anything to zero power = 1

27. Simplify

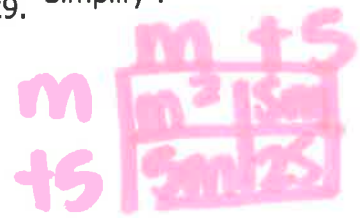
28. Find the area, in simplest terms, of the rectangle.

$3x^2y$ by $4x^3y^2$

$A = lw$

$(3x^2y)(4x^3y^2) = 12x^5y^3$

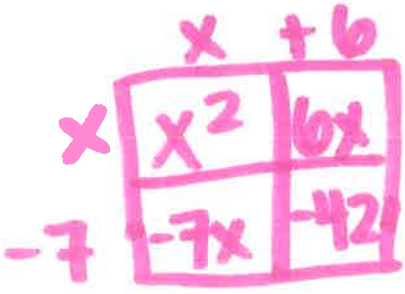
29. Simplify : $(m+5)^2$



$m^2 + 10m + 25$

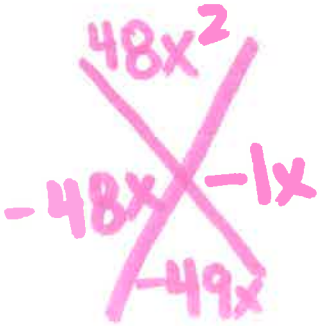
Unit 8 FACTORING p.97-104

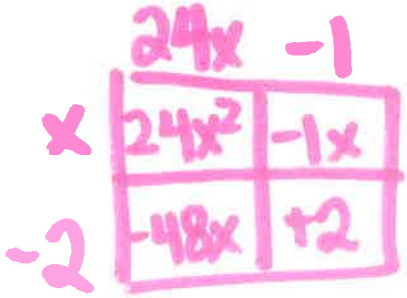
30. The area of a rectangle is $x^2 - x - 42$. Factor the expression to find the length and width.



$(x+6)(x-7)$

31. Factor $24x^2 - 49x + 2$





$(24x-1)(x-2)$

Unit 9 Quadratics p.105 - 116

ROOTS = ZEROES = X-INT = SOLUTIONS

32. Find the roots of the function $y = x^2 - 5x - 24$

GRAPH IT (-3,0) & (8,0)

33. Courtney graphed the parent function $y = x^2$. She reflected it over the x-axis and then translated the graph 3 units down. Write the equation of the new quadratic function.

$y = -x^2 - 3$

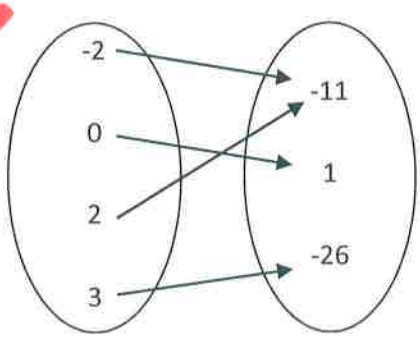
34. Which of the following does not represent the function $f(x) = -3x^2 + 1$?

A.

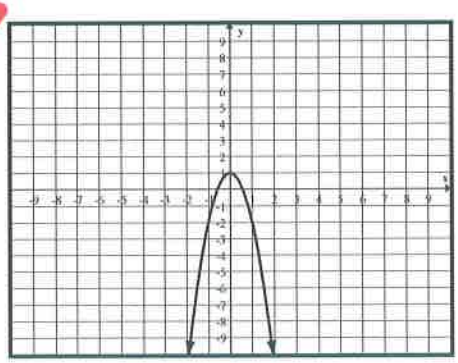
x	y
-3	-26
-1	-1
0	1
2	-11

-2

C.



B.



D. The dependent variable, y, is equal to 1 more than the product of -3 and the square of the independent variable, x.

35. Which lists the functions of the form $y = ax^2$ in order from the widest to the narrowest?

decimals to big

A. $y = -\frac{1}{2}x^2, y = \frac{2}{3}x^2, y = 2x^2, y = \frac{7}{8}x^2$

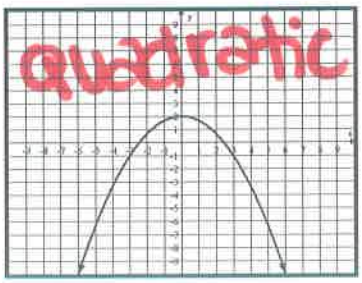
B. $y = 2x^2, y = \frac{7}{8}x^2, y = -\frac{1}{2}x^2, y = \frac{2}{3}x^2$

C. $y = -\frac{1}{2}x^2, y = \frac{2}{3}x^2, y = \frac{7}{8}x^2, y = 2x^2$

D. $y = \frac{7}{8}x^2, y = 2x^2, y = -\frac{1}{2}x^2, y = \frac{2}{3}x^2$

36. What is the parent function of the graph shown below?

$y = x^2$



37. The area of a rectangle is given by the equation $x^2 - 2x = 24$ where x is the length of the rectangle. What is the length?

-24 -24

$x^2 - 2x - 24 = 0$

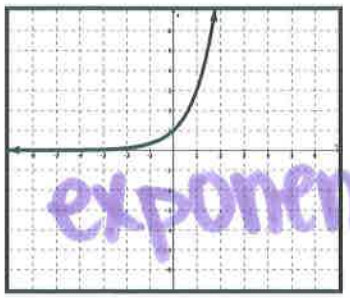
Find POSITIVE roots

length = 6

Unit 10 Exponentials p. 117 - 125

38. Which of the following represents a function that is linear?

A.



exponential

B. $f(x) = x^2 - 2$ quadratic

can plot points ☺

C.

x	y
-2	-10
-1	-6
0	-2
1	2

+4 +4 +4 linear

D.

x	y
-1	$\frac{2}{5}$
0	2
1	10
2	50

x5 x5 x5 exponential

39. If y varies directly as x, and y = 12 when x = 72, then what is the value of x when y = 3?

y=kx (Proportional)

W	P	N
x	72	x
y	12	3

x=18

40. Describe the effects of changing the 2 to a ½ in the exponential function $f(x) = 2*3x$

graph is wider

Good Luck on your exams! Don't forget to study any old homework, tests, quizzes, and all of your notes.

Monday, June 2

"0" Hour Exam 8:00- 8:50

1st 9:00 - 9:50

2nd 9:55 - 10:45

3rd 10:50 - 11:40

"A" 11:40 - 12:15 4th 12:20 - 1:15

Break 12:20-12:40

4th 11:45 - 12:40 "B" 12:40 - 1:15

5th 1:20 - 2:00

6th EXAM 2:05 - 4:10

8th EXAM 4:15 - 5:05

Tuesday, June 3

"0" Hour Exam 8:00- 8:50

1st EXAM 9:00 - 10:50

2nd 10:55 - 11:40

"A" 11:40 - 12:15 4th 12:20 - 1:15

Break 12:20-12:40

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3rd 1:20 - 1:40

5th EXAM 1:45 - 3:35

7th 3:40 - 4:10

8th EXAM 4:15 - 5:05

Wednesday, June 4

2nd 9:00 - 9:10

3rd EXAM 9:15 - 11:05

4th EXAM 11:15-- 1:00

Thursday, June 5

2nd EXAM 9:00 - 10:50

7th EXAM 11:00 - 1:00