Alg 2A Chapter 2 Review Fall 2016

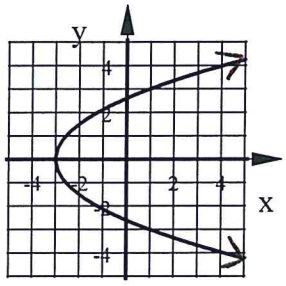
For 1 to 4, does each represent a function?

1. $(9,-1),(7,5),(3,-1),(6,5)$

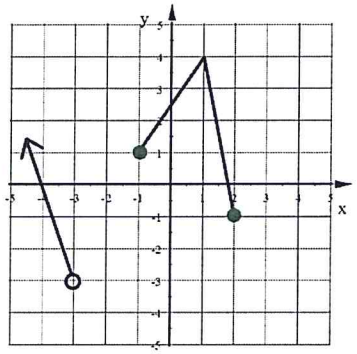
2.

X	4	−8	11	4	16
Y	−3	1	24	7	−5

3.



4.



5. State the Domain and Range of the relation in Problem 1.

6. a) State the Domain and Range of the relation in Problem 3.
   b) State the Domain and Range of the relation in Problem 4.

7. Write the equation of the line that passes through each pair of points in the form specified, if any.

a) Both Point-Slope and Slope-Intercept Form $(25,4)\&(-35,-20)$

b) Give your answer in Slope-Intercept form. Points: $(-6,-4)\&(27,18)$

c) $(8,2)\&(-5,2)$

d) $(-11,3)\&(-11,14)$

8. Use this given line: $y = -3x + 7$

a) Write the equation of a line that is parallel to this line and passes through the point $(12,-1)$

b) Write the equation of a line that is perpendicular to this line and passes through the point $(-6,10)$

9. Use these functions:

$f(x) = x - 3$ $g(x) = 4x + 7$ $h(x) = \frac{2x-1}{x-4}$ $k(x) = x^2 - 2$

a) Find $h(11)$

b) Find x if $g(x) = -43$

c) Find the range of $k(x)$ for this Domain: $\{-3,1,3,8\}$

d) Find $5f(17) - 2g(12)$

10. Tell if each pair of lines is parallel, perpendicular, or neither.

a.	b.	c.	d.	e.	f.
$y = 6x + 5$	$y = -\frac{1}{2}x + 1$	$y = 4$	$y = -3x + 5$	$y = 3$	$y = -2x$
$6x - 2y = 4$	$8x - 4y = 20$	$x = 1$	$y - 8 = -3(x + 1)$	$3x - y = 4$	$10x + 5y = 30$

11. Make a scatter plot on the graphing calculator, sketch the scatter plot, then find either a linear or quadratic regression equation to model the data. Round to the nearest hundredth. Then answer the question.

a) The data below relates the height of an object as a function of time.

Time (sec)	2	5	6.5	8	11
Height (ft)	450	831	916	930	735

i. Find the regression equation.
ii. Find the height of the object after 4 seconds.
iii. Find the height of the object after 16 seconds.

b) The data below relates the age of a species of snake with its length.

Age (yrs)	1	2	5	7	8
Length (cm)	39.7	67	148.6	202.3	227.5

i. Find the regression equation.
ii. Find the age of a snake if it is 300 cm long.
iii. Find the length of the snake when it is 20 years old.

12. Is each table below an example of Direct Variation?
If yes, state the variation constant, write a Direct Variation equation, and find the value of x if $y = 25$.

a)

X	Y
−6	−14.4
5	12
7.5	18
13	31.2

b)

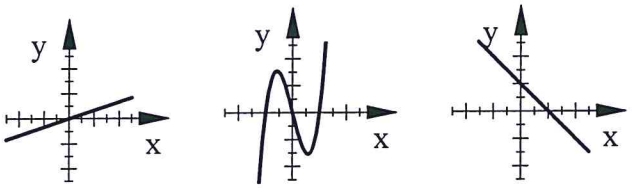
X	Y
8	20
12	30
5	2
30	45

c)

X	Y
−12	8
6	−4
18	−12
30	−20

13. Is each graph an example of Direct Variation?

a) b) c)



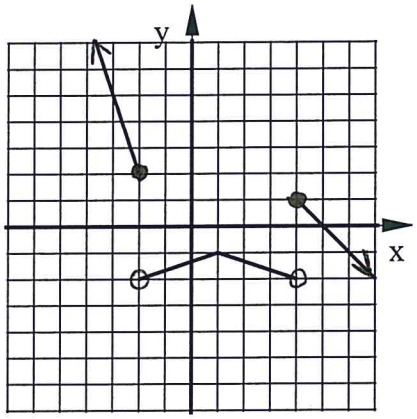
14. Given the point $(8,36)$ is part of a Direct Variation relationship.
a) Write the equation of this Direct Variation relationship.
b) If $(x,-5)$ is also a part of this Direct Variation Relationship find the value of x.
c) If $(20,y)$ is also a part of this Direct Variation Relationship find the value of y.

15. The number of laps Susan runs varies directly with the amount of time she runs. Susan took 40 minutes to run 16 laps.
a) Find the variation constant, include units
b) Write a Direct Variation equation.
c) Find amount of time it will take Susan to run 50 laps.

16. Graph this Piecewise Function.

$$f(x) = \begin{cases} 2x+5 & \text{if } x < -3 \\ 1 & \text{if } -3 \le x \le 2 \\ 2|x-4|-3 & \text{if } x \ge 2 \end{cases}$$

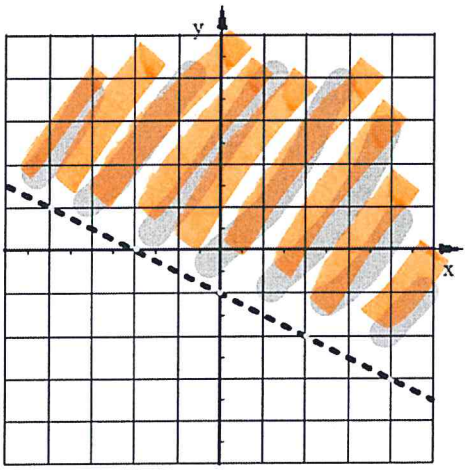
17. Write the rule for this Piecewise Function.



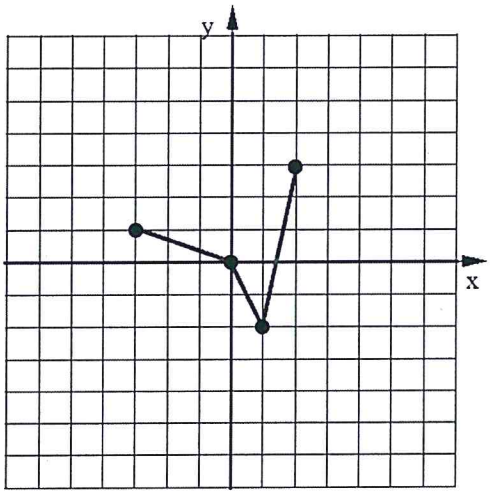
18. Graph each inequality. Shade the solution region.

a) $6x - 4y > 12$ b) $y \le -2x$ c) $x > -2$ d) $y \ge 3$ e) $y < -\frac{1}{3}x + 4$ f) $y \ge 2|x+2| - 4$

19. Write the inequality that is shown in the graph below.



19. Shown in the graph of $y = f(x)$
Sketch the graph of $y = -2f(x+4) + 1$



ANSWERS Alg 2A Chapter 2 Review Fall 2016

1. Yes 2. No 3. No 4. Yes 5. Domain: $\{3,6,7,9\}$ Range: $\{-1,5\}$
6. a) Domain: $x \ge -3$ Range: All Real #'s b) Domain: $x < -3, -1 \le x \le 2$ Range: $y > -3$
7. a) Point-Slope: $y - 4 = \frac{2}{5}(x-25)$ or $y + 20 = \frac{2}{5}(x+35)$ Slope-Intercept: $y = \frac{2}{5}x - 6$
   b) $y = \frac{2}{3}x$ c) $y = 2$ d) $x = -11$
8. a) $y + 1 = -3(x-12)$ or $y = -3x + 35$ b) $y - 10 = \frac{1}{3}(x+6)$ or $y = \frac{1}{3}x + 12$
9. a) 3 b) -12.5 c) Rane: $\{-1,7,62\}$ d) -40
10. a) Neither b) Perpendicular c) Perpendicular d) Neither e) Neither f) Parallel

11. a) i. $y = -15.99x^2 + 239.66x + 34.05$ ii. 736.85 ft
iii. -224.8 this means the object already hit the ground or it's actually 224.8 feet below the surface of the earth!
   b) i. $y = 26.92x + 13.20$ ii. ≈ 10.65 yrs old. iii. 551.6 cm

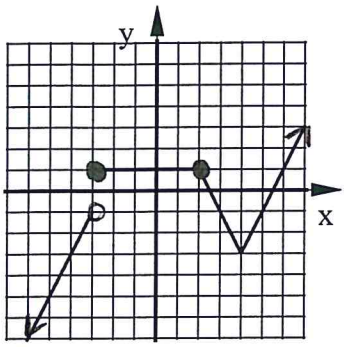
12. a) Yes. $k = 2.4$. EQ: $y = 2.4x$ or $\frac{y}{x} = 2.4$ $x \approx 10.42$ b) No

c) Yes. $k = \frac{2}{3}$ EQL $y = \frac{2}{3}x$ or $\frac{y}{x} = \frac{2}{3}$ $x = 37.5$

13. a) Yes b) No c) No 14. a) $y = 4.5x$ b) $x \approx -1.11$ c) $y = 90$

15. a) $k = 0.4 \frac{\text{laps}}{\text{min}}$ b) $y = 0.4x$ c) 125 min

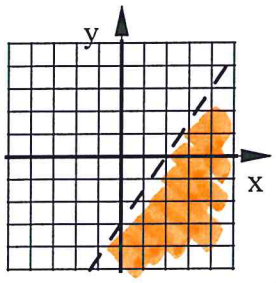
16.

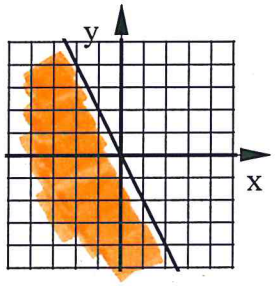


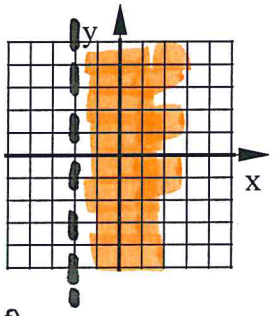
17.

$$f(x) = \begin{cases} -3x - 4 & \text{if } x \le -2 \\ -\frac{1}{3}|x - 1| - 1 & \text{if } -2 < x < 4 \\ -x + 5 & \text{if } x \ge 4 \end{cases}$$

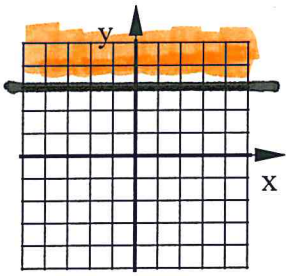
18. a) b) c)

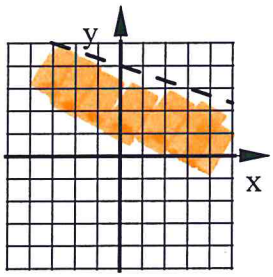


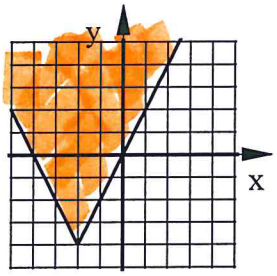




d) e) f)

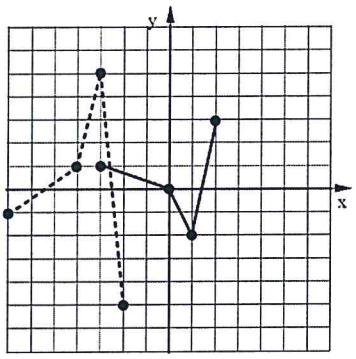






19. $y > -\frac{1}{2}x - 1$

20. The resulting graph is the dashed one.



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