Name: Key HW#____ Date: _____

UNIT 6A REVIEW

1. Which set of coordinate points is an example of a function?

1) { (-1,2) (2,-4) (-4,6) (3,8) }

2) { (-1,2) (2,-4) (-4,6) (-1,8) }

3) { (-1,2) (2,-4) (-4,8) (-4,8) }

4) { (-1,2) (2,-4) (5,6) (5,-4) }

x-values do not repeat

2. The relation defined by the set of ordered pairs {(0,2) , (-2,2) , (1,4) , (4,1) , (0,-1)} is *not* a function. Which of the ordered pairs listed below, if omitted from this relation, will make the resulting set a function?

1) (-2,-2)

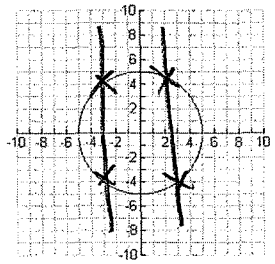
2) (1,4)

3) (4,1)

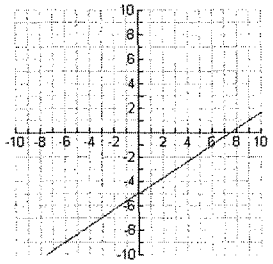
4) (0,-1)

3. Which graph does *not* represent a function?

1)

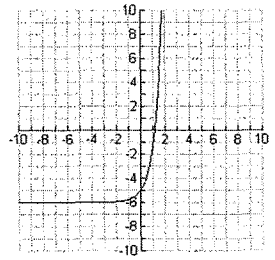


2)

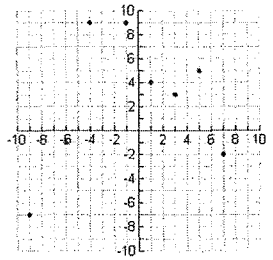


Fails vertical line test

3)

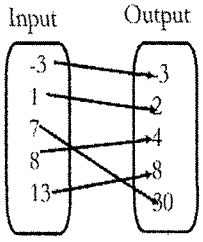


4)

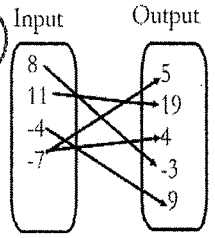


4. Which diagram represents a relation that is *not* a function?

1)



2)

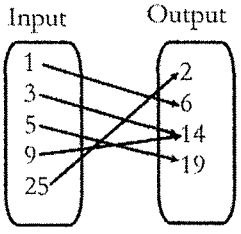


repeats

(-7,5)

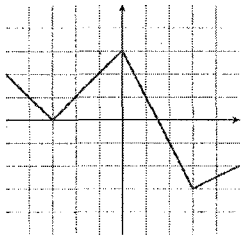
(-7,4)

3)



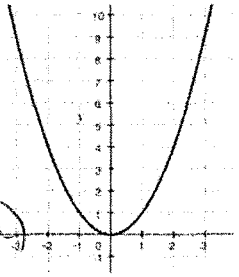
5. Given the graphs below, identify each type of function.

a)



piecewise linear

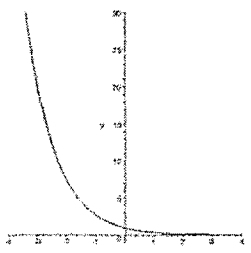
b)



(parabola)

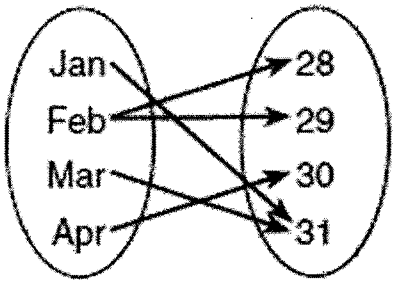
quadratic

c)



exponential decay

6. A mapping is shown in the diagram below. This mapping is



1) a function, because Feb has two outputs, 28 and 29

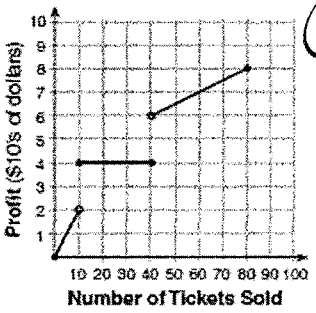
2) a function, because two inputs, Jan and Mar, result in the output 31

3) not a function, because Feb has two outputs, 28 and 29

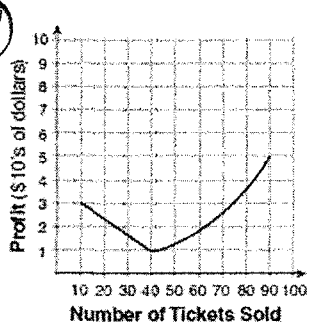
4) not a function, because two inputs, Jan and Mar, result in the output 31

7. To keep track of his profits, the owner of a carnival booth decided to model his ticket sales on a graph. He found that his profits only declined when he sold between 10 and 40 tickets. Which graph could represent his profits?

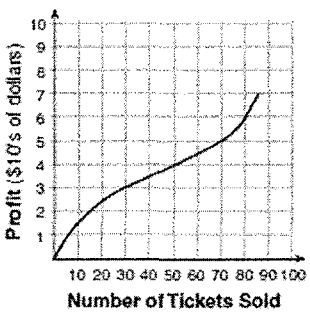
1)



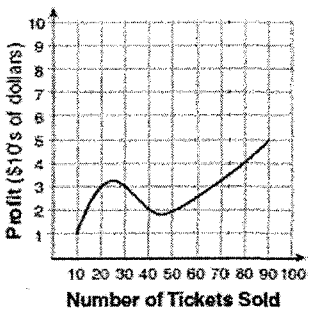
2)



3)



4)



8. Given the tables below, identify which function (exponential, absolute value, linear, or quadratic) represents the table.

x	y
0	4
1	12
2	36
3	108
4	324

×3 ×3 ×3 ×3

exponential

Exercise Time (in minutes)	Heart Rate (bpm)
0	60
1	65
2	70
3	75
4	80

+5 +5 +5

linear

x	y
−3	6
−2	0
−1	−4
0	−6
1	−6
2	−4
3	0
4	6

quadratic

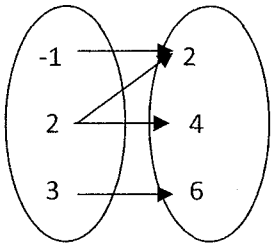
9. State the domain and range of each relation.

a. {(1, 3), (2, 4), (3, 3), (4, 4)}

Domain: { 1, 2, 3, 4 }

Range: { 3, 4 }

b.



Domain: { -1, -2, 3 }

Range: { 2, 4, 6 }

10. If $f(x) = 3x + 5$ evaluate the following

a. $f(-3)$

$x = -3$

$y = 3(-3) + 5$

$y = -9 + 5$

$y = -4$

b. $f\left(\frac{2}{3}\right)$

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

$y = 3\left(\frac{2}{3}\right) + 5$

$y = 7$

c. $f(x) = 11$

$y = 11$

$11 = 3x + 5$

$-5 \quad -5$

$\frac{6}{3} = \frac{3x}{3}$

$2 = x$

7. If $g(x) = x^2 + 6$ evaluate the following

$y = x^2 + 6$

a. $g(0)$

$x = 0$

$y = (0)^2 + 6$

$y = 6$

b. $g(-4)$

$x = -4$

$y = (-4)^2 + 6$

$y = 16 + 6$

$y = 22$

c. $g(x) = 42$

$y = 42$

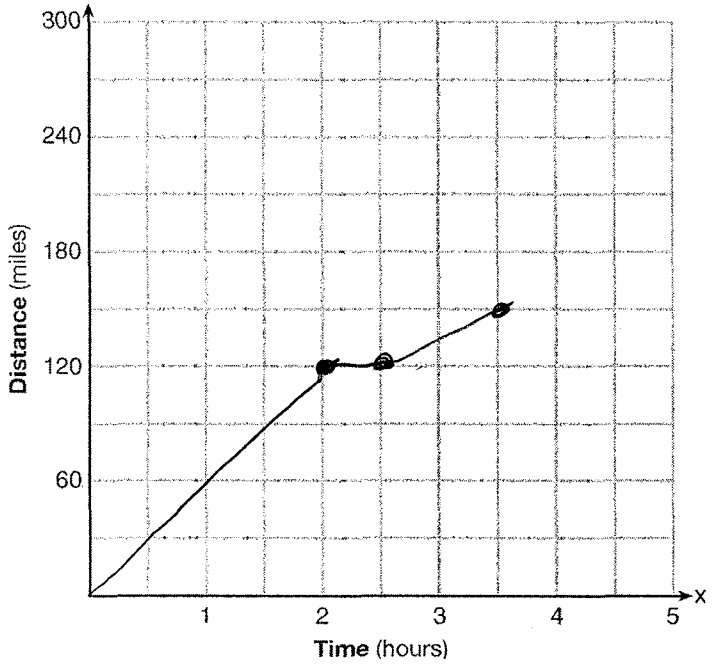
$42 = x^2 + 6$

$-6 \quad -6$

$\sqrt{36} = \sqrt{x^2}$

$\pm 6 = x$

11. A driver leaves home for a business trip and drives at a constant speed of 60 miles per hour for 2 hours. Her car gets a flat tire, and she spends 30 minutes changing the tire. She resumes driving and drives at 30 miles per hour for the remaining one hour until she reaches her destination. On the set of axes below, draw a graph that models the driver's distance from home.



12. What is the average rate of change for the following intervals:

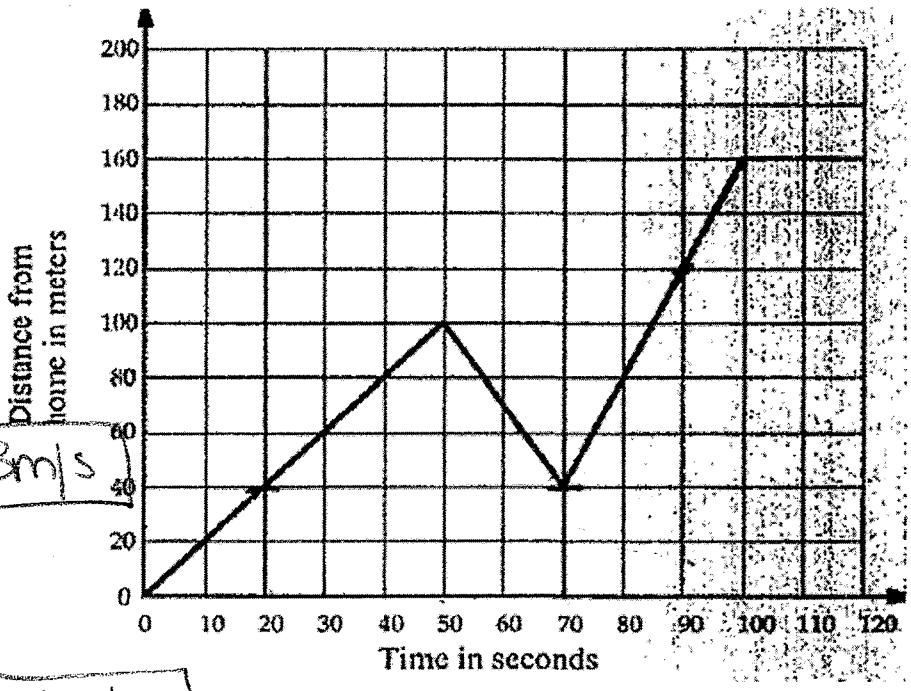
slope

a. 0-50 seconds

$\frac{100}{50} = 2$ m/s

b. 50-70 seconds

$\frac{100-40}{50-70} = \frac{60}{-20} = -3$ m/s



c. 70-100 seconds

$\frac{160-40}{100-70} = \frac{120}{30} = 4$ m/s

$\text{Rate} = \frac{\text{distance}}{\text{time}}$

d. 100-120 seconds

0

e. Find $f(40)$

$x = 40$ $y = 80$

f. Find $f(70)$

$x = 70$ $y = 40$

g. Find x if $f(x) = 120$

$y = 120$ $x = 90$

h. Find x if $f(x) = 40$

$y = 40$ $x = 20$ and 70