Name KEY Date

Quarterly Exam Review - Chapter 2 Algebra

1. Solve for x algebraically for each inequality.

a) $5(x - 4) + 6 > 36$

$5x - 20 + 6 > 36$

$5x - 14 > 36$

$5x > 50$

$\boxed{x > 10}$

b) $-3x + 7 \leq 2x - 13$

$-5x \leq -20$

$\boxed{x \geq 4}$

c) $-6(x + 8) < 12$

$-6x - 48 < 12$

$-6x < 60$

$\boxed{x > -10}$

d) $\frac{1}{6}(10x + 15) \geq 3(x - 6)$

$2x + 3 \geq 3x - 18$

$-x \geq -21$

$\boxed{x \leq 21}$

2. Which relation is a function? Explain why you chose your answer.

a) {(3,7), (2,7), (3,9), (-1,4)}

b) {(-5,6), (-4,2), (-4,0), (1,1)}

c) {(0,5), (1,5), (2,5), (3,5)}

d) {(0,0), (1,9), (2,15), (2,18)}

inputs don't repeat

3. The table below shows the average diameter of a person's pupil as he or she grows older. What is the average rate of change, in millimeters per year, of a person's pupil diameter from age 10 to age 25?

Age (years)	Average Pupil Diameter (mm)
5	9.4
10	8.6
15	7.9
20	7.0
25	6.2
30	5.4

$$\frac{8.6 - 6.2}{10 - 25} = \frac{2.4}{-15} = \boxed{-0.16}$$

4. Which of the following equations is equivalent to $y = 6x - 3$?

a) $2y + 12x = -6$

b) $2y + 12x = 6$

c) $2y - 12x = -6$

d) $2y - 12x = 6$

$y = 6x - 3$

$-6x \quad -6x$

$y - 6x = -3$

5. If $g(x) = kx + 6$ and $g(4) = 34$, what is the value of k?

$34 = k(4) + 6$

$34 = 4k + 6$

$28 = 4k$

$\boxed{k = 7}$

6. What is the equation of a line that has a slope of ½ and passes through the point (0,-18) in slope intercept form?

$y-(-18)=\frac{1}{2}(x-0)$

$y+18=\frac{1}{2}x$

$-18 \quad -18$

$\boxed{y=\frac{1}{2}x-18}$

7. What is the equation of a line that has a slope of -3 and passes through the point (-6,2) in slope intercept form?

$y-2=-3(x-(-6))$

$y-2=-3(x+6)$

$y-2=-3x-18$

$+2 \quad +2$

$\boxed{y=-3x-16}$

8. Diana is studying the function represented by f(x) = {(1,4), (8,-2), (3,7), (0,9)}. She believes if she added the point (3,5) to the function, it will not remain a function. Is Diana correct? Explain.

Yes because adding (3,5) will cause the input of 3 to have two outputs.

9. A family is traveling from their home to a vacation resort hotel. The table below shows their distance from home as a function of time.

Time (hours)	0	3	5	8
Distance (miles)	0	270	450	720

$\frac{720-270}{8-3}=\frac{450}{5}=90\text{mph}$

Determine the average rate of change between hour 3 and hour 8, including units.

10. Solve for x for each inequality.

a) $16x-2(3x-5)\leq 2(x-13)-5x-3$

$16x-6x+10\leq 2x-26-5x-3$

$10x+10\leq -3x-29$

$+3x \quad +3x$

$13x+10\leq -29$

$-10 \quad -10$

$13x\leq -39$

$\boxed{x\leq -3}$

b) $4(x+2)-15>-2(x+7)-5$

$4x+8-15>-2x-14-5$

$4x-7>-2x-19$

$6x>-12$

$\boxed{x>-2}$

11. Which set of ordered pairs has the greatest average rate of change?

a) (0,5) and (4,25) $\frac{25-5}{4-0}=\frac{20}{4}=5$

b) (-2,-6) and (8,29) $\frac{29-(-6)}{8-(-2)}=\frac{35}{10}=3.5$

c) (3,6) and (12,42) $\frac{42-6}{12-3}=\frac{36}{9}=4$

d) (-1,10) and (-3,28) $\frac{28-10}{-3-(-1)}=\frac{18}{-3}=-6$

12. The cost of a box of Tic Tacs in a vending machine is \$0.80. The cost of a bottle of water in the same machine is \$1.45. Jennifer has \$16 to spend on Tic Tacs and bottles of water for her team and she must by 8 boxes of Tic Tacs. If b represents the number of bottles of water, write an inequality that represents the maximum number of bottles she could buy.

$0.80(8) + 1.45b \leq 16$

$\boxed{6.40 + 1.45b \leq 16}$

$6.40 + 1.45b \leq 16$

$-6.40 \quad -6.40$

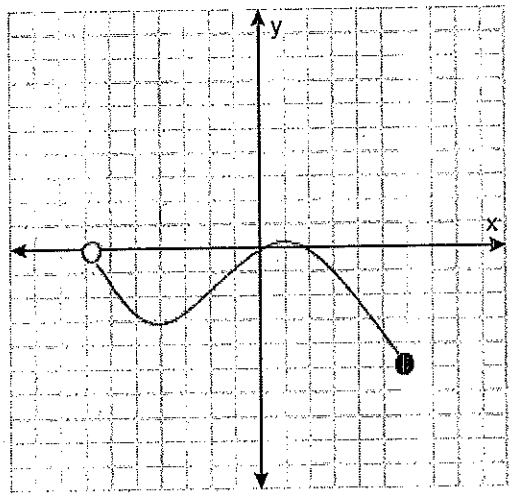
$1.45b \leq 9.6$

$\frac{1.45b}{1.45} \leq \frac{9.6}{1.45}$

$b \leq 6.6206$

Can only buy 6 bottles.

13. Identify the domain and the range of the following graph.

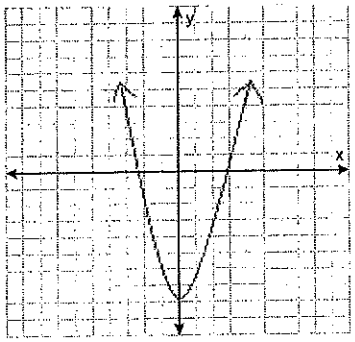


d: $(-7, 6]$ or $-7 < x \leq 6$

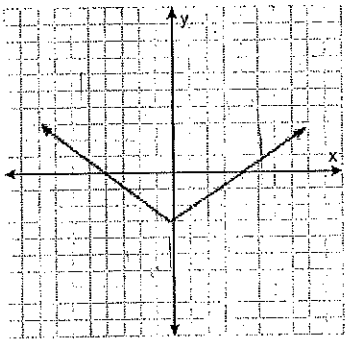
r: $[-5, 0)$ or $-5 \leq y < 0$

14. Which of the following is not a function?

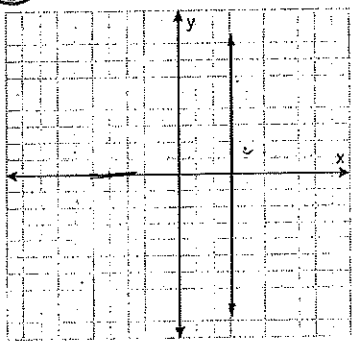
a)



b)



c)



d)