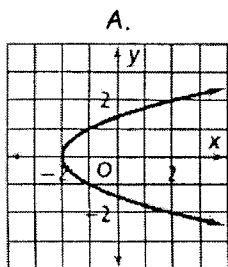
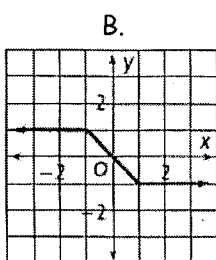


ICM Functions Quiz Review Worksheet

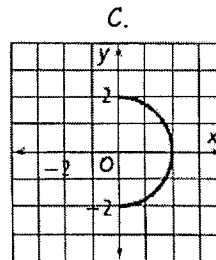
1. Determine whether each relation is a function.



no

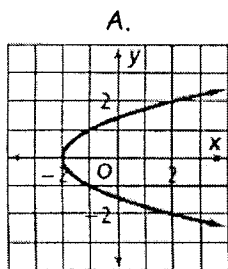


yes

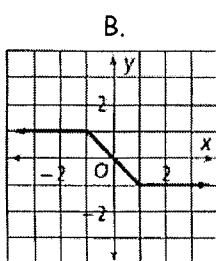


no

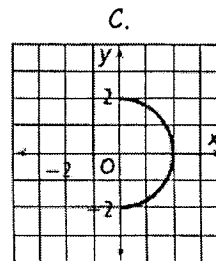
2. Determine whether each graph is one-to-one.



yes

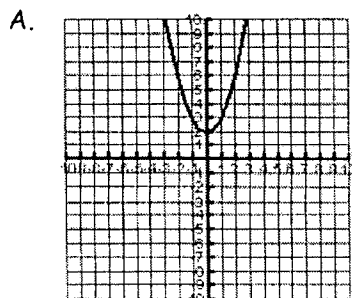


no

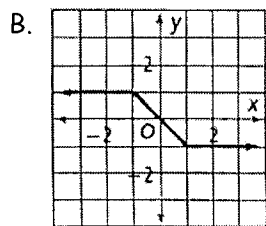


yes

3. Determine the domain, range, and x-intercepts.



domain: $(-\infty, \infty)$
 range: $[2, \infty)$
 x-intercepts: none



domain: $(-\infty, \infty)$
 range: $[-1, 1]$
 x-intercepts: $x = 0$

C. $f(x) = \frac{4}{x+3}$

domain: $(-\infty, -3) \cup (-3, \infty)$
 range: $(-\infty, 0) \cup (0, \infty)$
 x-intercepts: none

4. Determine the type(s) of symmetry for each relation.

A. $f(x) = x^2 - 6$

y-axis

B. $x^2 + y^2 = 9$

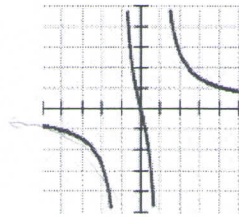
origin, x-axis, y-axis

5. Determine if $f(x) = -x^7 + 10x$ is even, odd, or neither.

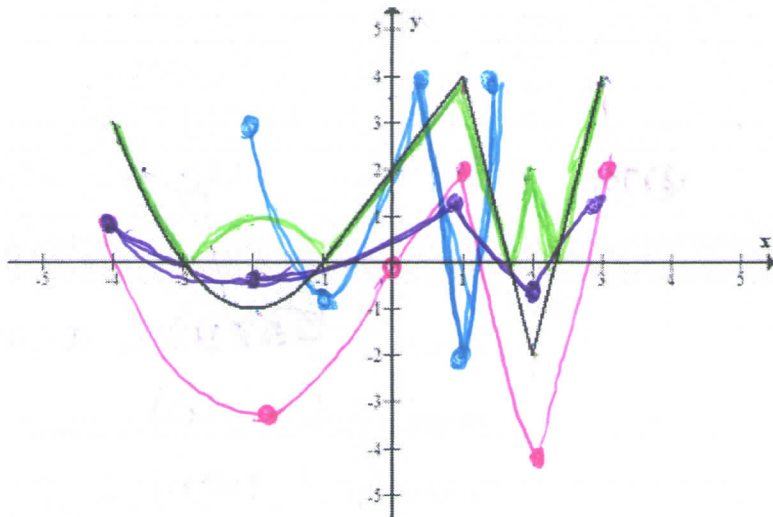
odd

6. List any asymptotes:

v.a. $x = -1$
 $x = 1$
 h.a. $y = 0$



7. Graph each transformation for the given graph of $y = f(x)$:



a. $|f(x)|$

b. $f(x) - 2$

c. $f(2x)$

d. $\frac{1}{3} f(x)$

8. Given $f(x) = \sqrt{x}$. Write an equation reflecting the following transformations:

horizontal shrink by a factor of $\frac{1}{3}$, vertical stretch by a factor of 4, reflect over the x-axis, vertical shift up 2

$$y = -4\sqrt{3x} + 2$$

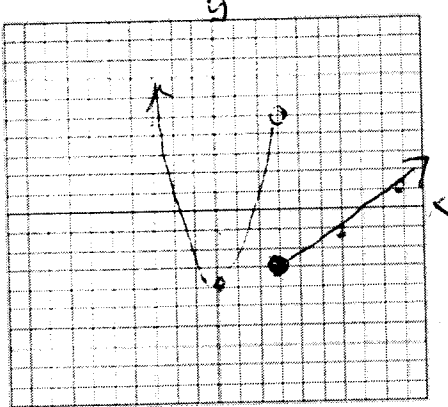
9. Describe the transformations on the parent function $y = |x|$ for $y = 9 - \frac{2}{3}| -x |$

refl. over y-axis
 vert. shrink $\times \frac{2}{3}$

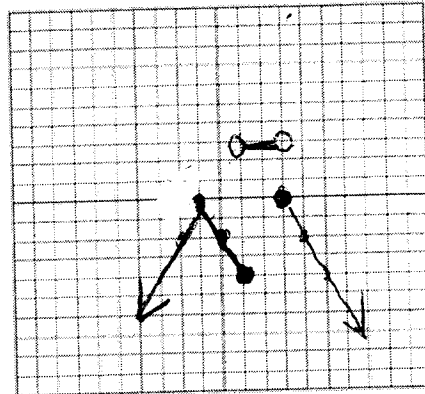
refl. over x-axis
 shift up 9

10. Graph each piecewise function:

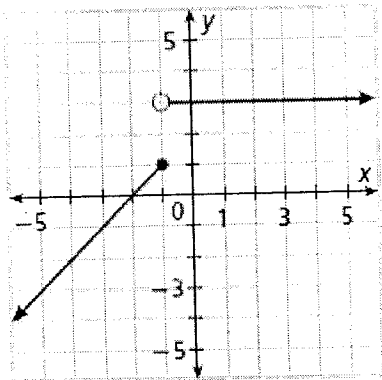
$$h(x) = \begin{cases} x^2 - 4, & x < 3 \\ \frac{2}{3}x - 5, & x \geq 3 \end{cases} \quad (3, 5)$$



$$f(x) = \begin{cases} -2|x+1|, & x \leq 1 \\ 3, & 1 < x < 3 \\ 6-2x, & x \geq 3 \end{cases}$$



11. Write an equation for the piecewise function graphed below:



$$f(x) = \begin{cases} x + 2, & x \leq -1 \\ 3, & x > -1 \end{cases}$$

$m=1$
 $b=2$

12. Your favorite dog groomer charges according to your dog's weight. If your dog is 15 pounds and under, the groomer charges \$35. If your dog is between 15 and up to 40 pounds, she charges \$40. If your dog is over 40 pounds, she charges \$40, plus an additional \$2 for each pound.

a. Write a piecewise function that describes what your dog groomer charges.

b. Graph the function.

c. What would the groomer charge if your cute dog weighs 60 pounds? $40 + 2(60 - 40) = 80$

$$c(x) = \begin{cases} 35, & x \leq 15 \\ 40, & 15 < x \leq 40 \\ 40 + 2(x - 40), & x > 40 \end{cases}$$

