Ready, Set, Go!

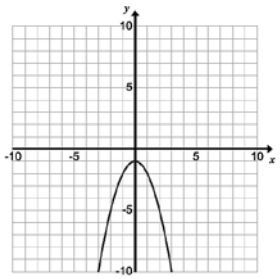
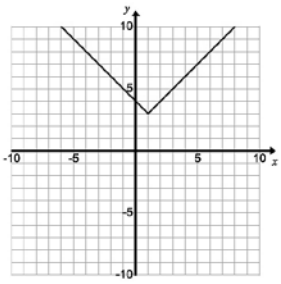
Ready Topic: Geometric symbols

Make a sketch that matches the geometric symbols. Label your sketch appropriately.

1. ΔRST
2. $\overrightarrow{AB}$
3. $\angle XYZ$
4. $\overleftrightarrow{GH}$
5. $\overline{JK} \perp \overline{PQ}$
6. Point S bisects $\overline{MN}$.
7. $\overrightarrow{AB}$ bisects $\angle XYZ$

Set Topic: Features of functions

Find the following key features for each function:

8. 	9. 	10. $f(x) = \begin{cases} -(x+3), & x < -3 \\ (x+3), & x \geq -3 \end{cases}$
a. Domain and range b. Intercepts c. Location and value of maxima/minima d. Intervals where function is increasing or decreasing	a. Domain and range b. Intercepts c. Location and value of maxima/minima d. Intervals where function is increasing or decreasing	a. Domain and range b. Intercepts c. Location and value of maxima/minima d. Intervals where function is increasing or decreasing

Part II: Creating Functions
Directions: Write **two** different functions that meet the given requirements.

11. A function that is always decreasing
12. A function that is symmetrical about the line x=3
13. A function with a minimum of 5 at $x = 1$
14. A function that is increasing from (-∞, 2) then decreasing from [2, ∞)
15. A function with one real root
16. A function that has a domain from [-2, ∞)
17. A function with a range from [0, ∞)
18. A function with a common factor of 2
19. A function that is also a geometric sequence
20. A function with x-intercepts at (-1, 0) and (1,0)

Go

Topic: Find the inverse of each function. If the inverse is not a function, restrict the domain.

21. $f(x) = x^2; f^{-1}(x) =$

22. $g(x) = 2x + 4; g^{-1}(x) =$

23. $f(x) = (x + 1)^2; f^{-1}(x) =$

24. $h(x) = \frac{1}{3}x + 6; h^{-1}(x) =$

25. $\boldsymbol{f(x)} = \{(\mathbf{-3, 5})(\mathbf{-2, -9})(\mathbf{-1, -2})(\mathbf{0, -5})(\mathbf{1, -4})(\mathbf{2, 6})(\mathbf{3, 10})(\mathbf{4, 8})\};$

$\boldsymbol{f^{-1}(x)} = \{(\ ,\ )(\ ,\ )(\ ,\ )(\ ,\ )(\ ,\ )(\ ,\ )(\ ,\ )(\ ,\ )\}$

Write the piecewise-defined function for the following absolute value functions

26. $h(x) = |x + 3|$

27. $f(x) = |x^2 - 4| + 1$

28. $g(x) = 5|x + 3|$

29. $f(x) = |x^2 - 16|$