

NAME: _____ Score _____/100
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SHOW ALL YOUR WORK IN A NEAT AND ORGANIZED FASHION

Circle T or F, whichever is correct. 5 pts. each for 29 – 35. 2 pts for others unless otherwise labeled.

1. T F An x-intercept of a graph is a point where the graph intersects the y-axis.
2. T F The point (0, 4) is on the x-axis.
3. T F The slope of a horizontal line is 0.
4. T F If a vertical line may be drawn so that it intersects a graph in more than one point, then that graph is not the graph of a function.
5. T F The first coordinate of the vertex of the graph of a quadratic function is $\frac{b}{2a}$.
6. T F The function f whose rule is $f(x) = 3x + 5$ and the equation $y = 3x + 5$ are equal.
7. T F The graph of a function is the set of all points of the form $(f(a), a)$.
8. T F The slope of a vertical line is 0.
9. T F The graph of the function f whose rule is $f(x) = 3x + 5$ and the graph of the equation $y = 3x + 5$ are the same.
10. T F The function whose rule is $f(x) = x^2$ is the squaring function.

Fill in each of the blanks to make the statements true.

11. A quadratic function is a function whose rule may be written in the form _____ where a , b , and c are real numbers and a is not zero.
12. The x-intercepts of any function are found by finding the real _____ of the function.
13. The function f whose rule is $f(x) = 5$ is an example of a linear function but more specifically it is an example of a _____ function.
14. The point $(k, f(k))$ is on the graph of the function f . If $f(k) > 0$, the point is _____ the x-axis.
15. If the rule for a function is $f(x) = x^3 - x + 5$, the range element associated with the domain element 2 is _____.
16. A zero of a function f is a domain element k for which _____.
17. The midpoint of the line segment joining $(3, 5)$ and $(-4, 9)$ is _____.

18. The exact length of the line segment joining $(3, 5)$ and $(-4, 9)$ is _____.

19. Write the equation of the circle with center (3, 5) and radius $\sqrt{11}$.

20. The graph of the function whose rule is $f(x) = \frac{\sqrt{7}}{3}x - \frac{11}{15}$ is a _____.

Questions 20– 25 are about the Cartesian coordinate system.

21. A rectangular coordinate system (Cartesian coordinate system) consists of two perpendicular number lines. One number line is drawn _____ and the other is drawn _____.

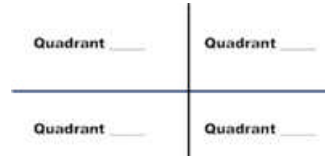
22. The point where these number lines intersect is the _____ point on each number line.

23. The horizontal number line is usually called the _____.

24. The vertical number line is usually called the _____.

25. The point of intersection of the two number lines is called the _____ of the coordinate system.

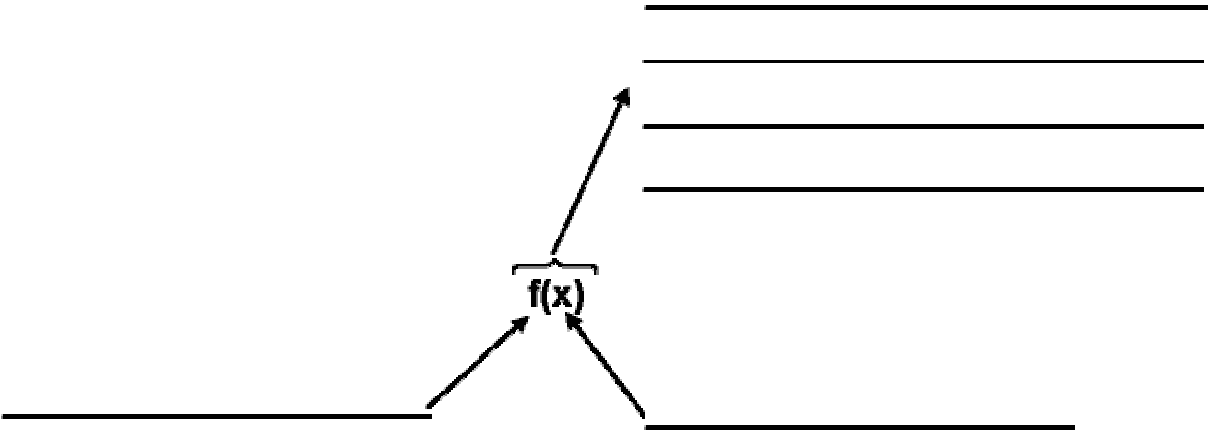
26. Label the quadrants on the coordinate system.



27.(6 pts) A _____ consists of three things;

- A set called the _____
- A set called the _____
- A _____ which associates _____ element of the _____ with a _____ element of the range.

28. (4 pts)



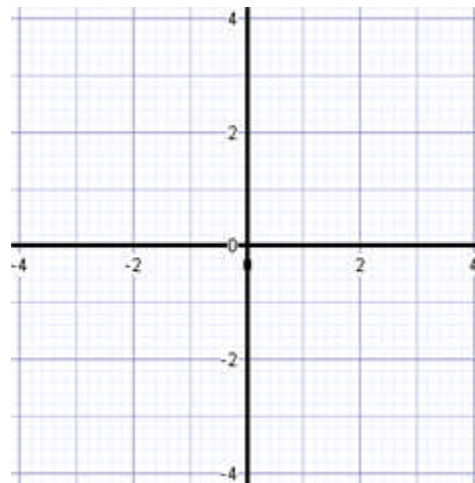
Questions 29 – 32 are about the same function.

29. Find the vertex of the graph of the function whose rule is $f(x) = x^2 + 2x - 3$.

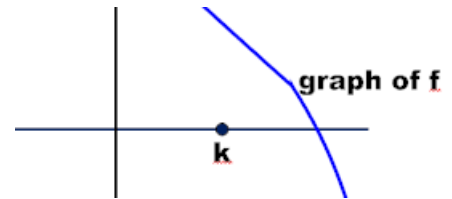
30. What are the x-intercepts of the function whose rule is $f(x) = x^2 + 2x - 3$?

31. What are the y-intercepts of the function whose rule is $f(x) = x^2 + 2x - 3$?

32. Use your answers in #29 - #31 to sketch the graph of the function whose rule is $f(x) = x^2 + 2x - 3$. Label all important points.

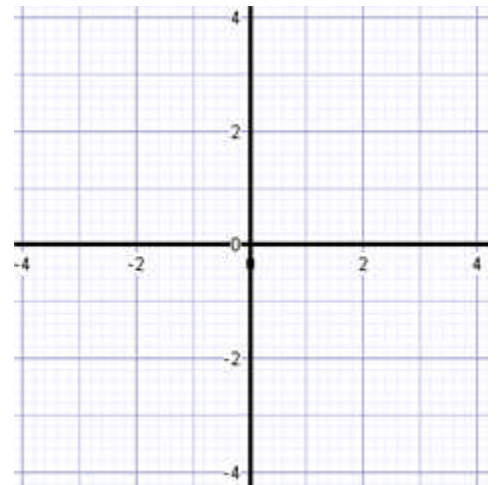


33. Draw an arrow from the domain element k to its corresponding range element $f(k)$. Place a dot at $f(k)$ and label it $f(k)$.

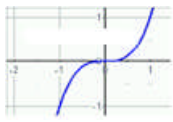
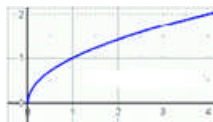
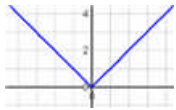
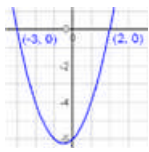



34. Find the equation of the line through $(3, 5)$ and $(-4, 9)$. Write the equation in slope-intercept form.

35. Sketch the graph of the function whose rule is $f(x) = 5x - 3$. Label the intercepts



(2 pts each) For Questions 35 – 39, you are to classify the function whose graph is shown by writing one of the following classifications in the blank: constant function, zero function, identity function, cube root function, cubing function, square root function, absolute value function, squaring function, quadratic function, reciprocal function.

<p>36.</p>  <p>_____</p>	<p>37.</p>  <p>_____</p>	<p>38.</p>  <p>_____</p>
<p>39.</p>  <p>_____</p>	<p>40.</p>  <p>_____</p>	<p>_____</p>