

Free case study on answers to exercises

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**ASSIGN
BUSTER**

1. Yes, it passes the test. A vertical line does not intersect the function in more than one place.
2. This is a piecewise function and the range is $y \geq 0$.
3. The domain is $x \geq -5$. The function is not defined for $x < -5$.
4. The only x intercept occurs at point (3, 0)
5. The y intercept occurs at point (0, 3)
6. It is a piecewise function. Each piece is linear.
7. The value is $f(x=2) = 3$.
8. Yes, the binomial function passes the vertical line test. A vertical line does not intersect the function in more than one place.
9. The range is $y \geq 2$.
10. The domain is all values x can take on, namely, all real numbers.
11. There is no x intercept. The lowest value of the function is $f(x=-3) = 2$. Therefore $f(x)$ never reaches zero so it does not cross the x axis.
12. The y intercept occurs at point (0, 3)
13. Yes, the cubic function passes the test. A vertical line does not intersect the function in more than one place.
14. The figure shows that the function covers all y values. Therefore, the range is all real numbers.
15. The domain is all real numbers. The x coordinate can take on any value.
16. There is only one x intercept and it occurs at point (1, 0)
17. The y intercept occurs at point (0, 1)
18. The cubic function evaluated at $x=2$ is $f(2) = -1$.
19. The inverse function is $g(y) = 3y-5$
20. The inverse function is $g(y) = 6y-7$
21. The new function is $f+gx = 4x+3$
22. The new function is $f-gx = 2x-1$.

When it is evaluated at $x=5$, the result is $f-g5 = 9$

23. The new function is:

$$fg(x) = 3x + 1x + 2 = 3x^2 + 6x + x + 2 = 3x^2 + 7x + 2$$

24. The new function is:

$$fgx = 3x + 1x + 2$$

When it is evaluated at $x = 1$, the result is,

$$fg1 = 43$$