Answer on Question #57179 – Math – Calculus

Question

1. Which of the following could be an example of a function with a range $(-\infty, -a]$ and a domain $[-b, \infty)$ where a > 0 and b > 0?

a) $f(x) = 3\sqrt{x-b} + a$;

b) $f(x) = -3\sqrt{x} + a - b$;

c) $f(x) = -\sqrt{x} + b - a$;

d) $f(x) = \sqrt{x} - a + b$.

Solution

Within answers a)-d) none is correct, but I think there is mistake in c). A correct answer must look like c) $f(x) = -\sqrt{x+b} - a$.

Answer: c) $f(x) = -\sqrt{x+b} - a$.

Question

2. Which of the following are true statements? Check all that apply.

a) The graph of $f(x) = -\frac{1}{2}\sqrt{x}$ will look like the graph of $f(x) = \sqrt{x}$ but will reflect it about the x-axis and shrink it vertically by a factor of ½.

b) The graph of $f(x) = -\frac{1}{2}\sqrt{x}$ will look like the graph of $f(x) = \sqrt{x}$ but will shrink it vertically by a factor of ½.

c) The graph of $f(x) = -\frac{1}{2}\sqrt{x}$ will look like the graph of $f(x) = \sqrt{x}$ but will shrink it horizontally by a factor of ½.

d) $f(x) = -\frac{1}{2}\sqrt{x}$ has the same domain but a different range as $f(x) = \sqrt{x}$.

Solution

We have two true statements: a) and d).

Answer: a) and d).