Practice with Limits

Please choose the best answer to each of the following questions.

1. Which g(x) has different limits for x=-3 and x=3?

   $g(x) = 4$

   $g(x) = \frac{4}{x^2}$

   $g(x) = x^4 - 2$

   $g(x) = x + 4$

2. $g(x) = x^2 - 2x + 1$. On [0, 3], what are the minimum and maximum g(x) values?

   1, 4

   0, 3

   1, 3

   -1, 1

3. $\lim_{x \to -3}(-x^3 + x^2) =$

   36

   18

   -18

   -36

4. $f(a) = 2$ and $f(x)$ crosses the x-axis 5 times on (a, b) $f(b)$ is
   > 2
   < 2
   > 0
   < 0

5. $f(x) = 5x,\ g(x) = 6 - x$
   $\lim_{x \to 5} f(x) \cdot g(x) =$
   25
   -5
   -44
   131

6. $\lim_{x \to 3^-} (x^2 - 2) =$
   7
   11
   -1
   -3
7. $\lim_{x \to 1^+} (x^3 + x) =$
   4
   3
   2
   0

8. A limit is _____.

A number
A derivative
A function
Undefined

9. For which $f(x)$ is there a conversion of all x values?

$\frac{1}{3-x}$

$\frac{3}{2x-8}$

$\sqrt{2x}$

$5x^3$

10. $g(x)$ diverges at $x = a$ if

$g(a)$=0

a is on a vertical asymptote

$g(a) > a$

$g(a) < a$