For items 1 – 2, evaluate each if $f(x) = x^2 - 3x + 1$.

1. $f(-4)$

2. $f(x + 2)$

3. Find the domain of $y = \frac{x^2-16}{x-4}$ in interval notation.

A. $(-\infty, \infty)$
B. $(-\infty, 4] \cup [4, \infty)$
C. $(-\infty, 4) \cup (4, \infty)$
D. $(-4, 4)$

4. Find the domain of $y = \sqrt{2x + 3}$ in interval notation.

A. $(-\infty, \infty)$
B. [-1.5, ∞)
C. $(-\infty$, -1.5]
D. (-1.5, ∞)

5. Find the domain of $y = \frac{1}{\sqrt{3x}}$ in interval notation.

A. $(-\infty, \infty)$
B. $(0, \infty)$
C. $[0, \infty)$
D. $(-\infty, 0) \cup (0, \infty)$

6. Find the range of $y = x^3$ in interval notation.

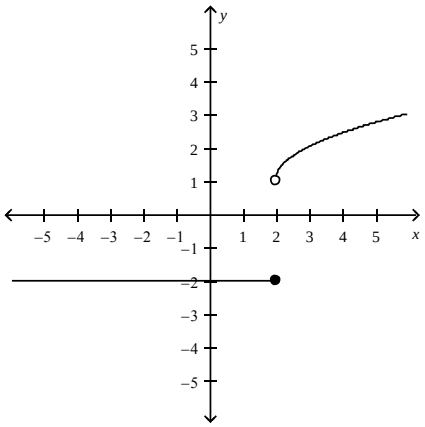
A. $(-\infty, \infty)$
B. $(0, \infty)$
C. $[0, \infty)$
D. $(-\infty, 0) \cup (0, \infty)$

7. Find the range of $y = 3^x$ in interval notation.

A. $(-\infty, \infty)$
B. $(0, \infty)$
C. $[0, \infty)$
D. $(-\infty, 0) \cup (0, \infty)$

8. For the figure at the right, find $\lim_{x \to 2^-} f(x)$.

A. -2
B. 1
C. 2
D. The limit does not exist.



9. For the figure at the right, find $\lim_{x \to 2} f(x)$.

A. -2
B. 1
C. 2
D. The limit does not exist.

10. Find $\lim_{x\to -3}\frac{x^2-9}{x^3+27}$.

A. 0
B. ∞
C. $-\frac{2}{9}$
D. The limit does not exist.

11. Find $\lim_{x\to 3}\frac{-2}{(x-3)^2}$

A. 0
B. ∞
C. $-\infty$
D. The limit does not exist.

12. Find $\lim_{x\to 0}\frac{\sqrt{16+x}-4}{x}$

13. Describe the discontinuities of the function $f(x)=\frac{x+5}{x^2+5x}$.

14. Describe the discontinuities of the function $f(x)=\frac{x+2}{x^2+7x+10}$.

Find the derivative of each function.

15. $f(x)=7x^2+3x-2$

16. $f(x)=2x^{\frac{1}{2}}$

17. $f(x)=\frac{3-x}{2x+1}$

18. $f(x)=(4x^2+5)^6$

19. Find the equation of line tangent to the graph of $f(x)=x^3-2x^2$ at the point (3, 9).

A. $y=-4x+1$ B. $y=4x-8$ C. $y=15x+54$ D. $y=15x-36$

20. The position for an object is given by $s(t)=2t^2-6t-4$, measure in feet with time in seconds.

Find the instantaneous velocity when $t=3$.

A. 6 ft/sec B. -4 ft/sec C. 4 ft/sec D. 10 ft/sec