

Math 2215 - Calculus 1

Quiz #1 - 2005.08.24

Solutions

1. Determine the domain and range of $f(x) = \sqrt{x^2 - x - 2}$.

The roots of $x^2 - x - 2$ are $x = -1$ and $x = 2$. Also, the parabola opens up, so the values on the interval $(-1, 2)$ are such that $x^2 - x - 2 < 0$. Thus the domain of $f(x)$ is $(-\infty, -1] \cup [2, \infty)$. The range is $[0, \infty)$.

2. Evaluate $\sin\left(\frac{\pi}{6}\right)$.

$$\sin\left(\frac{\pi}{6}\right) = \frac{1}{2}$$

3. Evaluate $\cos\left(\frac{\pi}{3}\right)$.

$$\cos\left(\frac{\pi}{3}\right) = \frac{1}{2}$$

Determine if the following functions are odd, even or neither.

4. $t(x) = \sin(x)$

Notice that $\sin(-x) = -\sin(x)$, so $t(x)$ is odd.

5. $p(x) = x^4 - 12x^2 - 1$

Here $p(-x) = p(x)$, so $p(x)$ is even.

6. $q(x) = x^4 - 12x^3 - 1$

In this case, the function is not odd and also not even, thus it is neither.