Solutions

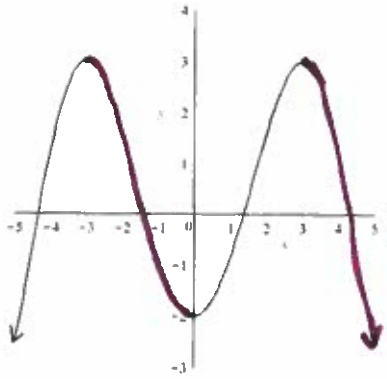
Quiz 1: Section 1.1-1.3

1. Consider the function given by $f(x) = x^2 + 1$. Find the difference quotient (average rate of change) between $x = 1$ and $x = 4$.

$$\frac{f(4)-f(1)}{4-1} = \frac{(4)^2+1-((1)^2+1)}{3} = \frac{16+1-(1+1)}{3}$$

$$= \frac{17-2}{3} = \frac{15}{3} = \boxed{5}$$

2. Consider the graph of the function $g(x)$ given below. Determine the approximate intervals on which g is decreasing.



$(-3,0) \cup (3,\infty)$

3. On January 27, 2013, the cost to mail a letter in the US was raised from 45 cents to 46 cents. Find the relative change in cost.

$$\frac{P'-P}{P} \qquad P=45 \qquad P'=46 \qquad \frac{46-45}{45} = \boxed{\frac{1}{45}}$$

$$= 0.0\bar{2} \approx 2.2\%$$