

## Problem Set 24

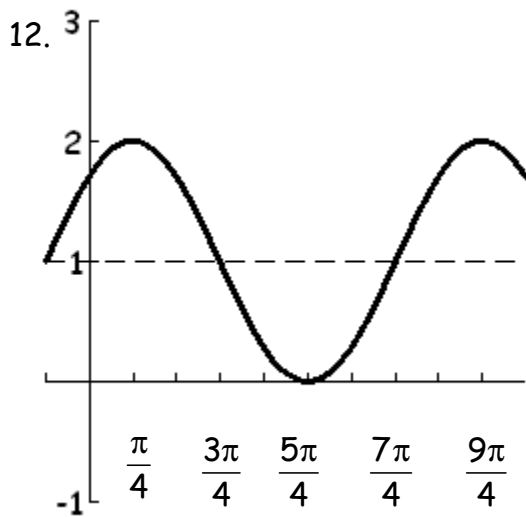
2.  $3x^2$

4.  $-\frac{3}{t^4}$

6.  $-\frac{2}{x^3}$

8.  $\theta = \frac{2\pi}{9}, \frac{4\pi}{9}, \frac{8\pi}{9}, \frac{10\pi}{9}, \frac{14\pi}{9}, \frac{16\pi}{9}$

10.  $-280$



14.  $\frac{\ln x}{\ln 10}$

16. a)  $(f \circ g)(x) = x - 4$   
 $(g \circ f)(x) = \sqrt{x^2 - 4}$

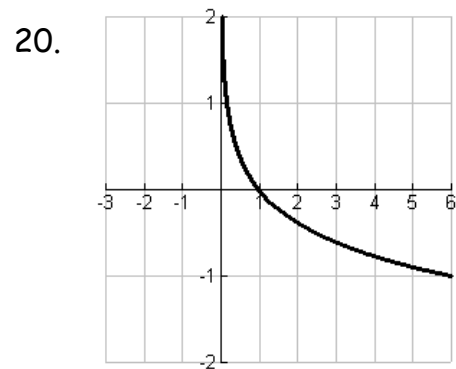
b)  $f(x): D = \{x \in \mathbb{R}\};$   
 $R = \{y \in \mathbb{R} \mid [0, \infty)\}$

$g(x): D = \{x \in \mathbb{R} \mid [4, \infty)\};$   
 $R = \{y \in \mathbb{R} \mid [0, \infty)\}$

$f \circ g: D = \{x \in \mathbb{R} \mid [4, \infty)\};$   
 $R = \{y \in \mathbb{R} \mid [0, \infty)\}$

$g \circ f: D = \{x \in \mathbb{R} \mid (-\infty, 2] \text{ or } [2, \infty)\};$   
 $R = \{y \in \mathbb{R} \mid [0, \infty)\}$

18.  $-\infty$



22.  $L - 0.001 < y < L + 0.001$

24.  $2$