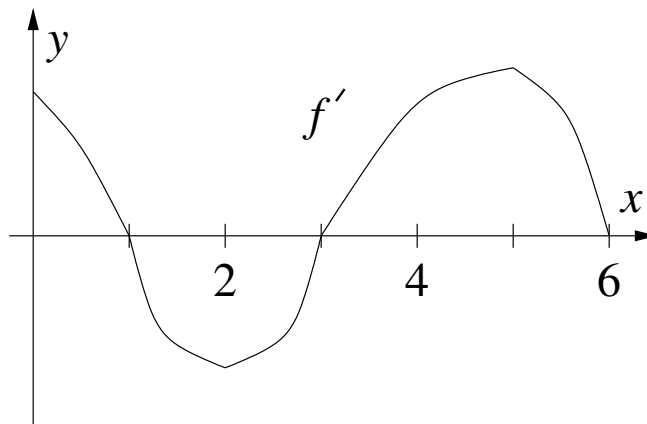
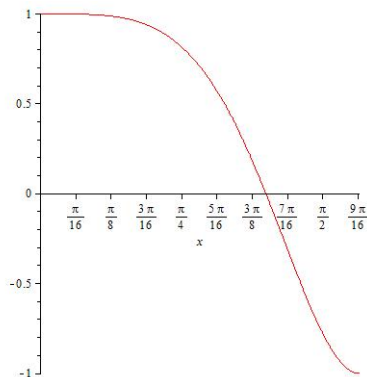


Answers for class prep quiz on section 4.3, Stewart's Calculus (8th ed.)



1. **Answer:** (a). By THE BOX,  $f(x)$  is increasing when  $f'(x) > 0$ , which occurs for  $0 < x < 1$  and  $3 < x < 6$ .
2. **Answer:** (c). By THE BOX,  $f(x)$  is concave down when  $f'(x)$  is decreasing, which occurs for  $0 < x < 2$  and  $5 < x < 6$ .
3. **Answer:** (c). Since  $f'(x)$  is negative and increasing for  $2 < x < 3$ , by THE BOX,  $f(x)$  is decreasing and concave up for  $2 < x < 3$ , and only picture (c) is decreasing and concave up.

4. **Answer:** (c). If you graph  $y = \cos(x^2)$ , it looks like:



The  $x$ -intercept is at  $x = \sqrt{\frac{\pi}{2}}$ . So:

- Since  $g'(x) > 0$  for  $0 < x < \sqrt{\frac{\pi}{2}}$  and  $g'(x) < 0$  for  $\sqrt{\frac{\pi}{2}} < x < \sqrt{\pi}$ ,  
by THE BOX,  $g(x)$  is increasing for  $0 < x < \sqrt{\frac{\pi}{2}}$  decreasing for  
 $\sqrt{\frac{\pi}{2}} < x < \sqrt{\pi}$ .
- Since  $g'(x)$  is decreasing for  $0 < x < \sqrt{\pi}$ , by THE BOX,  $g(x)$  is  
concave down for  $0 < x < \sqrt{\pi}$ .