1. (a) i. T; ii. F; iii. F; iv. T; v. F; vi. T; vii. T; viii. F; ix. F; x. T.

   (b) ~22.5 feet

   (c) any one minute interval that contains $t = 8$ (but not as an endpoint)

   (d) 4 feet per minute

   (e) 192 feet

2. (a) $q = 47.304$ thousand Items

   (b) $q = 15.2$ thousand Items

   (c) $TR(q) = 236.52q - \frac{5}{2}q^2$
   $VC(q) = q^3 - 24q^2 + 197q$

   (d) $FC = 1142.16$ thousand dollars

3. (a) $\dfrac{dw}{du} = -2\left(\dfrac{7u-6}{3u+4}\right)^{-3} \cdot \dfrac{(3u+4)\cdot 7 - (7u-6)\cdot 3}{(3u+4)^2}$

   (b) $M_s(s,t) = 2st^6 + \dfrac{20s}{10s^2 + 3t^9}$

   $M_t(s,t) = 6s^2t^5 + \dfrac{27t^8}{10s^2 + 3t^9}$

   (c) $\dfrac{\partial z}{\partial x} = y^2 e^{xy}$

   $\dfrac{\partial z}{\partial y} = e^{xy} + xye^{xy}$

4. (a) 80

   (b) 40,363 dollars

5. (a) 1.05056 hundred dollars

   (b) 12.766

   (c) $MR(q) = -6.8q + 40$

   (d) $q = 4.5$ hundred Things

6. (a) $\left(-\dfrac{1}{4}, \dfrac{1}{4}\right)$

   (b) $A \approx f_y(2,3) = 6$ and $B \approx f_x(2,3) = 5$. A is bigger.

   (c) HINT: Investigate values of $f_y(x,y)$.
   ANSWER: The function with the steepest graph at $y = 1$ is $f(10,1)$.