1.

(a) Evaluate $\lim_{x\to 2} \dfrac{x-2}{\sqrt{3-x}-1}$.

(b) Is there any number a such that

$$\lim_{x\to -2} \frac{3x^2+ax+a+3}{x^2+x-2}$$

exists? If so, find the value a and the value of the limit.

2. §2.3: 42.

3. §2.3: 55.

4. §2.4: 8.

5. §2.4: 18.

6. Compute the following limits:

(a) $\lim_{t\to 0}\left(\dfrac{2t}{\tan(t)} - \dfrac{\sin(\sin(t))}{\sin(t)}\right)$

(b) $\lim_{y\to 0}\left(\dfrac{\sin(5y)}{\sin(4y)} + \dfrac{\sin(3y)\cot(5y)}{y\cot(4y)}\right)$