Answer key for Chapter 1 Review Worksheet
Video explanations of EVERY problem are available on YouTube. Simply search for MsJECHS.

1.   3
2.   a, d, e
3.   a, b, e
4.   e
5.   e
6.   c has an vertical asymptote at x=2
7.   b has a horizontal asymptote at y=1
        c appears to have a horizontal asymptote at y=0
        e has a horizontal asymptote at y=3 (hard to see on your copy)
        e has a second horizontal asymptote at y= -1
8a)   -10
8b)   -12
8c)   -10
9)   watch video for one possible solution
10)

$$f(x)=\begin{cases} \dfrac{x^2+2x-6}{x-2} & x<2 \\ 5 & x=2 \\ \dfrac{x^2+2x-6}{x-2} & x>2 \end{cases}$$

11)   1
12)   k=5
13a)   2
13b)   4
13c)   DNE
14)   -10
15)   0
16) $\dfrac{\sqrt{3}}{2}$

17)   DNE
18) $\dfrac{\sqrt{3}}{2}$

19)   -4$\sqrt{2}$
20)   2
21)   2
22)   DNE
23) $\dfrac{2}{3}$

24) $\dfrac{3}{2}$

25) DNE, ∞
26) DNE, -∞
27a) 18
27b) 2
27c) DNE
28) x=7 (not x=2)
29a) y=2
29b) none
29c) y=0
30)
The $\lim\limits_{x\to-1} f(x) = -1$ and f(−1) = 2. $\lim\limits_{x\to-1} f(x) \neq$ f(−1)
so the function is not continuous at x = −1.
31)
The $\lim\limits_{x\to 7} q(x) = DNE$ so q(x) is discontinuous at x = 7.
32)

The function h(x) $= \dfrac{x^2 - 3}{x - 7}$ is continuous for x on the interval $(-\infty, 7) \cup (7, \infty)$.

h(x) is discontinuous at $x = 7$ because $\lim\limits_{x\to 7} h(x) = $ DNE and because h(7) is undefined.

33) The function f(x) = tan x is discontinuous at π/2 because tan π/2 is undefined and
because $\lim_{x\to\pi/2} \tan x =$ DNE.

34) (see video for the work you should show)
$\lim\limits_{x\to 2-} 7x - 3 \neq \lim\limits_{x\to 2+} x^2 + 3$

35) 6

36) 0

37) (there is no 37)

38-42 Please watch the video explanation for the answers.