ANSWERS:

1. C
2. D
3. B
4. C
5. A
6. A
7. D
8. E
9. a) T b) T c) F d) T e) F f) T g) F h) F i) F j) T

10. a) \( \lim_{x \to -2} f(x) = 0 \)
b) \( \lim_{x \to -1} f(x) = -\infty \)
c) \( \lim_{x \to 0} f(x) \) does not exist.
d) \( \lim_{x \to 2} f(x) = \frac{4}{9} \)

11. 
\[
f^{-1}(x) = \frac{7x - 3}{x - 2}
\]
f\( (x) \) has domain \( x \neq 7 \) and range \( y \neq 2 \)
f\( -1(x) \) has domain \( x \neq 2 \) and range \( y \neq 7 \)

12. 
a) There is an infinite discontinuity at \( x = -3 \): the zero in the denominator of this rational function cannot be cancelled.
  b) There is a jump discontinuity at \( x = 0 \): the two one-sided limits are finite but unequal.
  c) There is a removable discontinuity at \( x = 1 \): the zero in the denominator of this rational function can be cancelled/removed.
  d) \( f(x) \) is continuous at \( x = 2 \): the point is outside of the domain of the part of \( f(x) \) having the \( x - 2 \) term in the denominator.
  e) \( f(x) \) is continuous at \( x = 3 \): both one-sided limits agree with the functional value of 4 at \( x = 3 \).

13. 
a) \( f'(x) = \lim_{h \to 0} \frac{f(x + h) - f(x)}{h} \)
b) \( f'(x) = \frac{-a}{2(\sqrt{ax + b})^3} = \frac{-a}{2(ax + b)^{3/2}} \)