Chapter 4 Practice Test - Curve Sketching
Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1 REF: Knowledge and Understanding
   OBJ: 4.1 - Increasing and Decreasing Functions
2. ANS: B PTS: 1 REF: Thinking
   OBJ: 4.2 - Critical Points, Local Maxima, and Local Minima
3. ANS: D PTS: 1 REF: Knowledge and Understanding
   OBJ: 4.2 - Critical Points, Local Maxima, and Local Minima
4. ANS: B PTS: 1 REF: Knowledge and Understanding
   OBJ: 4.4 - Concavity and Points of Inflection
5. ANS: D PTS: 1 REF: Thinking
   OBJ: 4.5 - An Algorithm for Curve Sketching
6. ANS: A PTS: 1 REF: Thinking
   OBJ: 4.1 - Increasing and Decreasing Functions
7. ANS: B PTS: 1 REF: Knowledge and Understanding
   OBJ: 4.3 - Vertical and Horizontal Asymptotes
8. ANS: C PTS: 1 REF: Knowledge and Understanding
   OBJ: 4.3 - Vertical and Horizontal Asymptotes
9. ANS: D PTS: 1 REF: Knowledge and Understanding
   OBJ: 4.3 - Vertical and Horizontal Asymptotes
10. ANS: D PTS: 1 REF: Knowledge and Understanding
    OBJ: 4.4 - Concavity and Points of Inflection

SHORT ANSWER

11. ANS:
    $x < 1$

    PTS: 1 REF: Knowledge and Understanding
    OBJ: 4.1 - Increasing and Decreasing Functions
12. ANS:
    Local minimum
    P.O.I $\left(-\frac{1}{2}, -35.5\right)$
    ccd on $\left(-\infty, -\frac{1}{2}\right)$, and this is the only interval since there is only one POI.

    PTS: 1 REF: Knowledge and Understanding
    OBJ: 4.2 - Critical Points, Local Maxima, and Local Minima

13. ANS:
$f(x)$ has a vertical asymptote of $x = 1$. From the left, $f(x) \to -\infty$. From the right, $f(x) \to +\infty$
$f(x)$ has an oblique asymptote of $y = 3x + 1$.

PTS: 1 REF: Thinking OBJ: 4.3 - Vertical and Horizontal Asymptotes

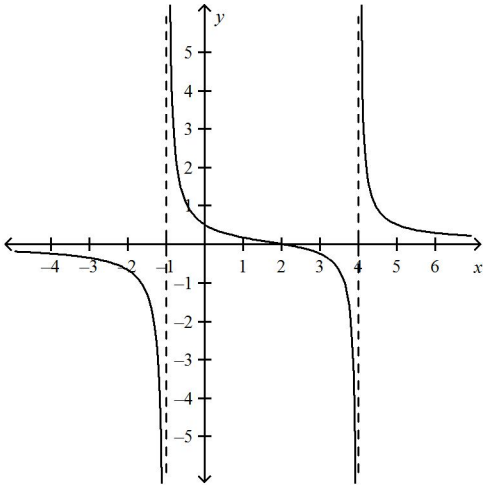
PROBLEM

14. ANS:

$$f'(x) = -6x^2 + 2ax + b$$
$$f'(-2) = 0$$
$$-24 - 4a + b = 0$$
$$b = 24 + 4a$$
$$f'(7) = 0$$
$$-294 + 14a + b = 0$$
$$-294 + 14a + 24 + 4a = 0$$
$$18a = 270$$
$$a = 15$$
$$b = 24 + 4(15)$$
$$b = 84$$

PTS: 1 REF: Application OBJ: 4.1 - Increasing and Decreasing Functions

15. ANS:



PTS: 1 REF: Application OBJ: 4.5 - An Algorithm for Curve Sketching