Name_____ No calculators. Present neatly. Score_____.

1) Produce the graph of f that reveals all the important aspects of the curve. In particular, you should use the signs of $f\,'$ and $f\,''$ to identify the intervals of increase and decrease, extreme values, intervals of concavity, and inflection points. (**15 points**)

$$y = \frac{x^3}{x - 2}$$

2) Sketch a continuous curve $y = f(x)$ with the stated properties. (**5 points**)
$f(2) = 4, \quad f''(x) < 0 \text{ for } x \neq 2, \quad \lim_{x \to 2^-} f'(x) = 1,$
$\lim_{x \to 2^+} f'(x) = -1$

Your work:

Name_____ No calculators. Present neatly. Score_____.

1) Produce the graph of f that reveals all the important aspects of the curve. In particular, you should use the signs of $f\,'$ and $f\,''$ to identify the intervals of increase and decrease, extreme values, intervals of concavity, and inflection points. (**15 points**)

$$y = x\sqrt{2 - x^2}$$

2) Sketch a continuous curve y = f(x) with the stated properties. (**5 points**)

$f(2) = 4, \quad f''(x) > 0 \text{ for } x < 2, \quad f''(x) < 0 \text{ for } x > 2,$

$\lim_{x \to 2^-} f'(x) = +\infty, \quad \lim_{x \to 2^+} f'(x) = +\infty$

Your work: