Name _

• You have 20 minutes

• No calculators

• Show adequate work

1. Evaluate

$$\frac{d}{dx}\left(5e^{3\sqrt{x}}+e^{e^3}\right)$$



2. Give the (x, y) coordinates of all points on the curve

$$y = \frac{x-1}{x+1}$$

where the tangent line is parallel to $y = \frac{1}{2}x + 4$.



3. Suppose that

$$f(x) = x^6 e^x.$$

Find the second derivative f''(x).

$$f''(x) =$$

4. Suppose that a particle's position is given by the function

$$s(t) = t^4 - 5t^3 + 17t - 29.$$

At what time t is the particle's acceleration equal to 0?

$$t =$$