Name $\qquad$

- You have 20 minutes
- No calculators
- Show adequate work

1. Evaluate

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

$=$
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 $y=\frac{1}{2} x+4$.

$$
(,) \text { and }(,)
$$

3. Suppose that

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

Find the second derivative $f^{\prime \prime}(x)$.

$$
f^{\prime \prime}(x)=
$$

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

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

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

