PreCalc ACC '18 **Name:_____**
Spring Practice Final – Part 1
Calculator Allowed **score _____**

Show all work. Round to 3 decimals.

1. Find the following derivatives:

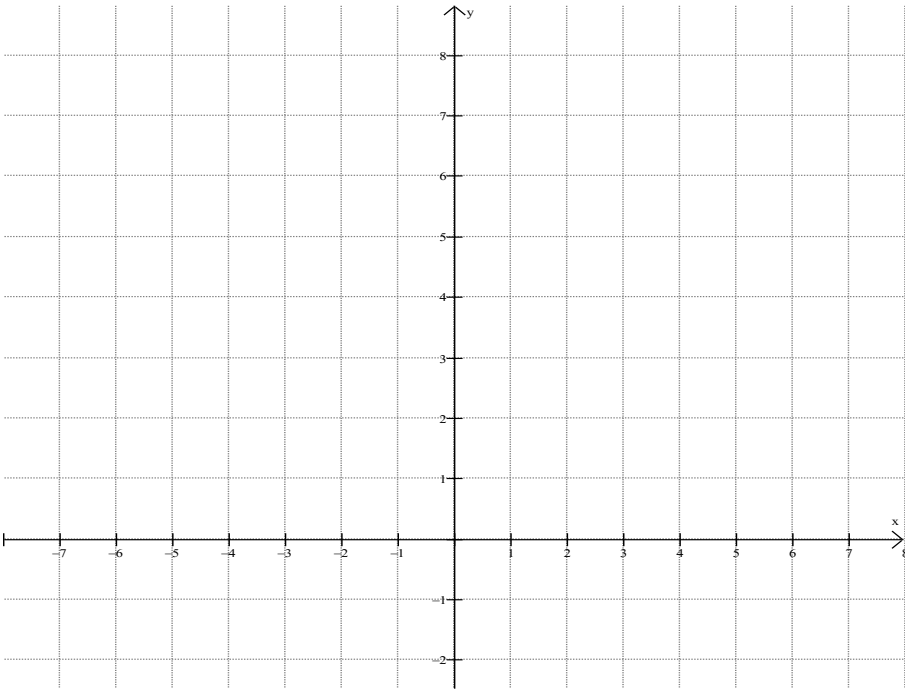
a. $\frac{d}{dx}\left(\tan 3x^2\right)$

b. $\frac{d}{dx}\left(\ln\left(x^2+4\right)\right)$

c. $\frac{d}{dx}\left(e^x \csc x\right)$

d. $\frac{d}{dx}\left(\frac{e^x}{16-x^2}\right)$

2. Sketch a graph of a function with the following traits:



3. Find domain and zeros of $y = \sqrt{-x^3 - 2x^2 + 3x}$.

4. Find the extreme points of $y = \sqrt{-x^3 - 2x^2 + 3x}$. Show the algebraic work to support the critical values.

5. Find domain and zeros of $f(x)=x^3+7x^2-2x-14$.

6. Find the extreme points of $f(x)=x^3+7x^2-2x-14$ on $x\in[-8,2]$. Show the algebraic work to support the critical values.

7. Find the Point of Inflection for $f(x)=x^3+7x^2-2x-14$ on $x\in[-8,2]$. Show the algebraic work to support the result.

8. Find domain, VAs, and zeros of $g(x)=\frac{x^3-9x}{x^4-13x^2+36}$.

9. Find the extreme points of $g(x)=\frac{x^3-9x}{x^4-13x^2+36}$. Show the algebraic work to support the critical values.

10. Find domain, VAs, and zeros of $f(x)=x^2e^{x^2-5}$.

11. Find the extreme points of $f(x)=x^2e^{x^2-5}$. Show the algebraic work to support the critical values.

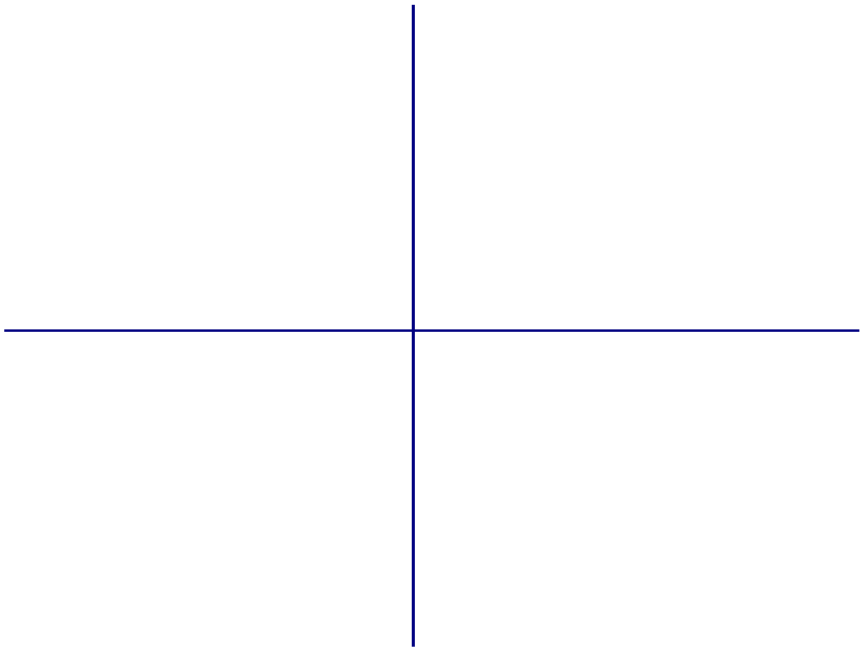
PreCalc ACC '18 **Name:_____**
Spring Practice Final – Part 2
NO Calculator Allowed **score:_____**

Show all work. Round to 3 decimals.

12. Find the traits and **sketch** $y = \sqrt{-x^3 - 2x^2 + 3x}$.

Y-intercept: Range:

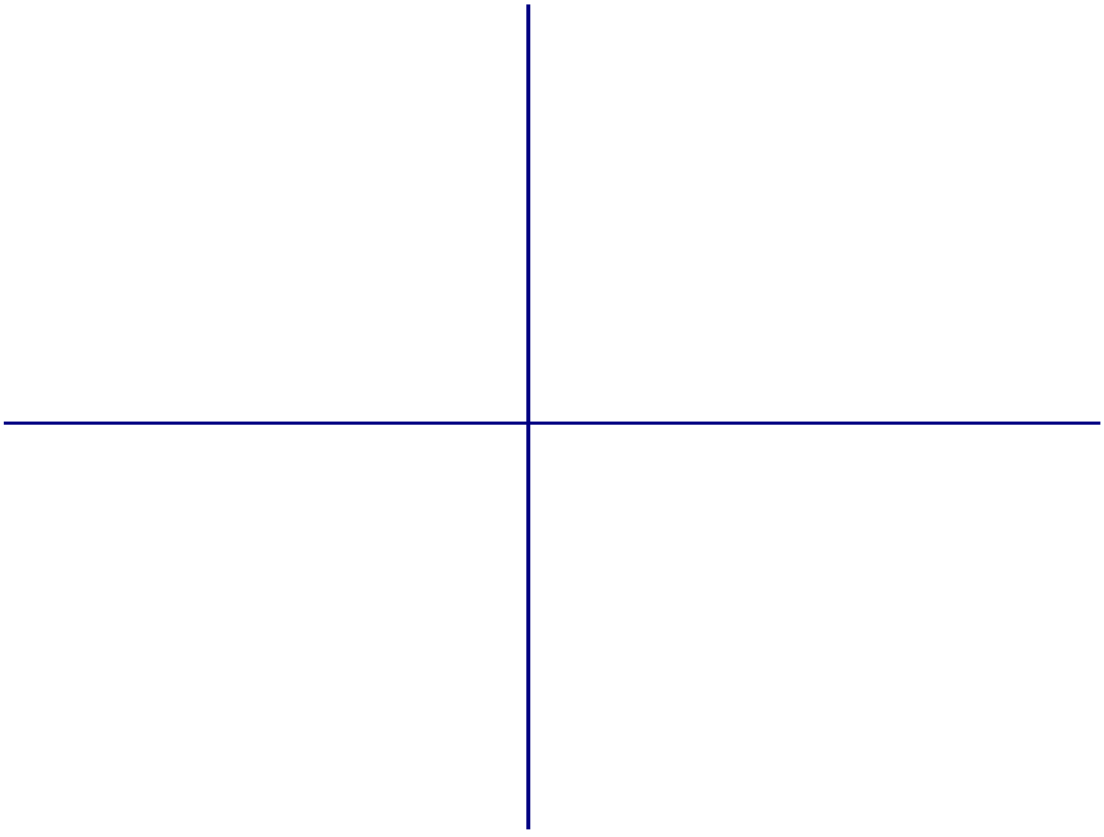
End Behavior (Left): End Behavior (Right):



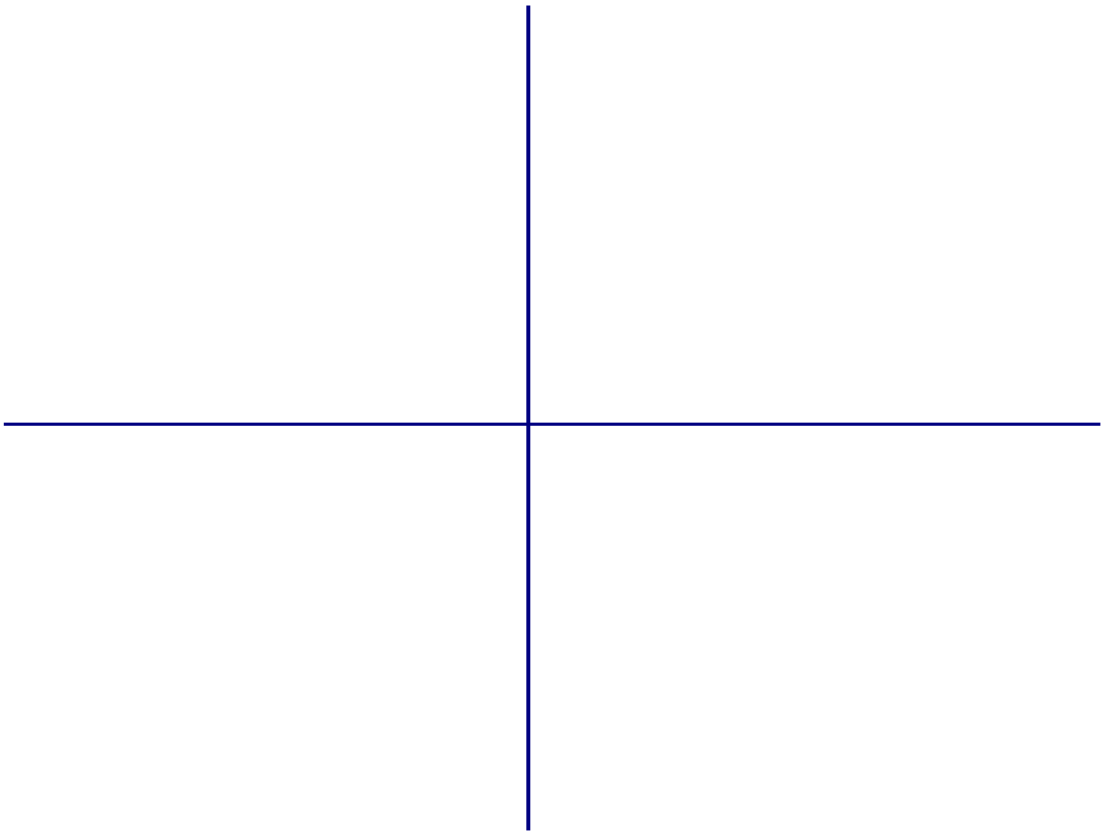
13. Find the traits and **sketch** of $f(x) = x^2 e^{x^2-5}$.

Y-intercept: Range:

End Behavior (Left): End Behavior (Right):



14. **Sketch** $f(x)=x^3+7x^2-2x-14$ on $x\in[-8,2]$. Show the sign patterns for $f(x)$, $f'(x)$, and $f''(x)$.



15. **Sketch** of $g(x)=\dfrac{x^3-9x}{x^4-13x^2+36}$.