PreCalculus ACC '22-23 Name:_____

Dr. Quattrin

Radical Test

CALCULATOR ALLOWED

Round to 3 decimal places. Score _____

1. If $y = \dfrac{x}{\sqrt{x^2+6}}$, then $\dfrac{dy}{dx} =$

a) $\dfrac{6}{(x^2+6)^{3/2}}$ b) $\dfrac{-x}{(x^2+6)^{3/2}}$ c) $\dfrac{-x^2}{x^2+6}$

d) $\dfrac{x}{(x^2+6)^{3/2}}$ e) $\dfrac{-x^2-6x}{x^2+6}$

---

2. Let $f(x)$ be the function given by $f(x) = \sqrt{x+3}$. What is the y-intercept of the line tangent to $f(x)$ at $(1,\ 2)$?

a) $\dfrac{1}{4}$ b) $\dfrac{1}{2}$ c) $\dfrac{3}{4}$ d) $\dfrac{5}{4}$ e) $\dfrac{7}{4}$

---

3. Given the functions $f(x)$ and $g(x)$ that are both continuous and differentiable, and that have values given on the table below.

x	$f(x)$	$f'(x)$	$g(x)$	$g'(x)$
-3	1	-2	5	6
1	5	7	-3	-5
5	-3	-4	1	2

Given that $h(x) = f(g(x)), h'(-3) =$

a) -24 b) -12 c) -4 d) -5 e) -2

---

4. Find the equation of the line tangent to $x^3 - y^2 + 6y = 3$ at $(-2, 1)$

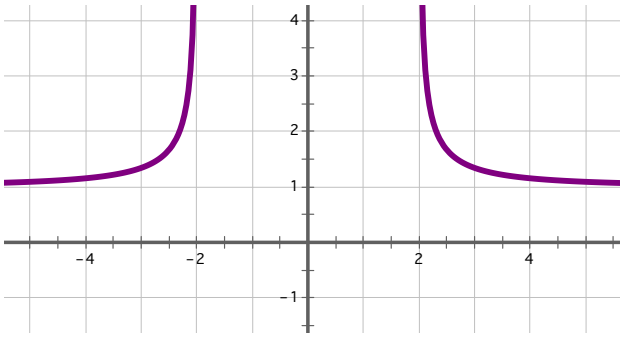
a) $3x^2 - 2y = -6$ b) $3x - y = -7$

c) $3x + y = -5$ d) $x + 3y = 1$

e) $x - 3y = -5$

---

5. Which of the following equations matches the graph below?



a) $y=\sqrt{\frac{x^2}{4-x^2}}$

b) $y=\sqrt{\frac{4-4x^2}{x^2+4}}$

c) $y=\sqrt{\frac{4x^2-4}{x^2+4}}$

d) $y=\sqrt{\frac{x^2}{x^2-4}}$

---

6. What is the end behavior of $y=-\sqrt{x^3-2x^2-5x+6}$?

a) None on the left and down on the right

b) None on the left and none on the right

c) Up on the left and none on the right

d) Down on both ends

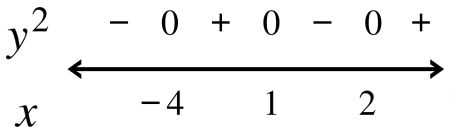
e) Down on the left and none on the right

---

7. The x-value(s) of the relative maximum(s) of $y = \sqrt{27x - x^3}$ is/are

a) 3 b) $3\sqrt{6}$ c) -3 d) $0,\ \pm 3\sqrt{3}$ e) 0

---

8. Given this sign 

, the domain of $y = f(x)$ is

a) $x \in (-\infty, -4) \cup (1, 2)$ b) $x \in (-\infty, -4] \cup [1, 2]$

c) $x \in (-4, 1) \cup (2, \infty)$ d) $x \in [-4, 1] \cup [2, \infty]$

e) $x \in [-4, 1] \cup [2, \infty)$

PreCalculus ACC '22-23 Name:_____ _____
Dr. Quattrin
Radical Test
CALCULATOR ALLOWED
Round to 3 decimal places. Score _____
Show all work.

1. Find the zeros, domain, and End Behavior $y = -\sqrt{x^4 - 7x^2 + 12}$ on $x \in [-4, \infty)$.

zeros _____

domain_____

Left End Behavior_____

Right End Behavior_____

2. Extreme points of$y = -\sqrt{x^4 - 7x^2 + 12}$ on $x \in [-4, \infty)$.

3. Find the zeros, domain, and End Behavior $y = \sqrt{\frac{x^2-16}{x^2-9}}$.

zeros _____

domain_____

VAs_____

Left End Behavior_____

Right End Behavior_____

4. Extreme points of$y = \sqrt{\frac{x^2-16}{x^2-9}}$.

5. Find the zeros, domain, and End Behavior $y = \sqrt{x^3 + 4x^2 - 5x - 20}$.

zeros _____

domain_____

Left End Behavior_____

Right End Behavior_____

6. Extreme points of $y = \sqrt{x^3 + 4x^2 - 5x - 20}$.

7. Find the traits and **sketch** of $y = \sqrt{x^3 + 4x^2 - 5x - 20}$.

Domain:

Y – Intercept:

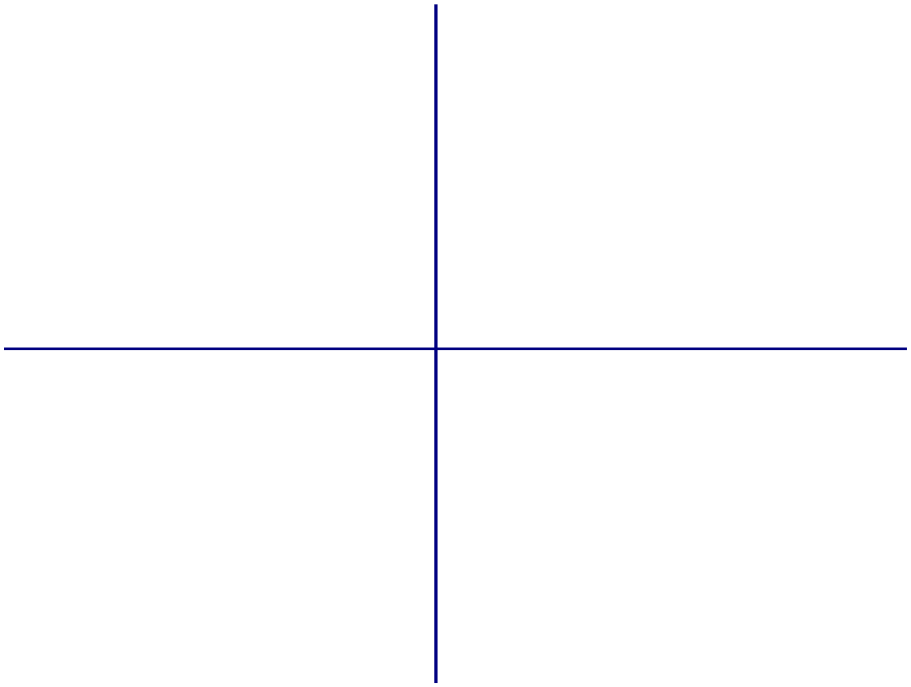
Zeros:

Range:

End Behavior (left):

End Behavior (right):

Extreme Points:



8. Find the traits and **sketch** of $y = \sqrt{\dfrac{x^2-16}{x^2-9}}$.

Domain:

Y – Intercept:

Zeros:

Range:

VAs:

POEs:

End Behavior (left):

End Behavior (right):

Extreme Points: