

Test #1 (Part 1 – No Calculator)

Name: _____

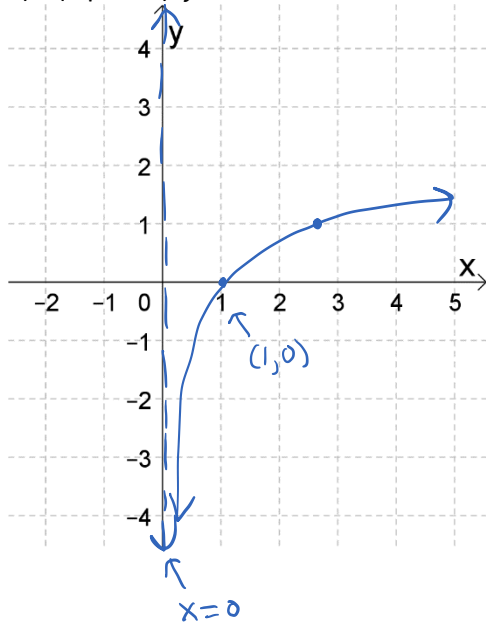
Math 18, Prof. Beydler

Monday, September 17, 2018

Directions: Show all work. No calculator, books, or notes. Your desk and lap must be clear (no phones, no smart watches, etc.). If you have a phone in your lap or on your chair, it is considered cheating, and you will receive a zero on this test. Write your answers in the indicated places, or box your answers. When you're finished with Part 1, please turn it in, take a bathroom break, get your calculator out, and start Part 2. Good luck!

1. Graph the following functions. **Label intercepts and asymptotes.** Find the domain and range.

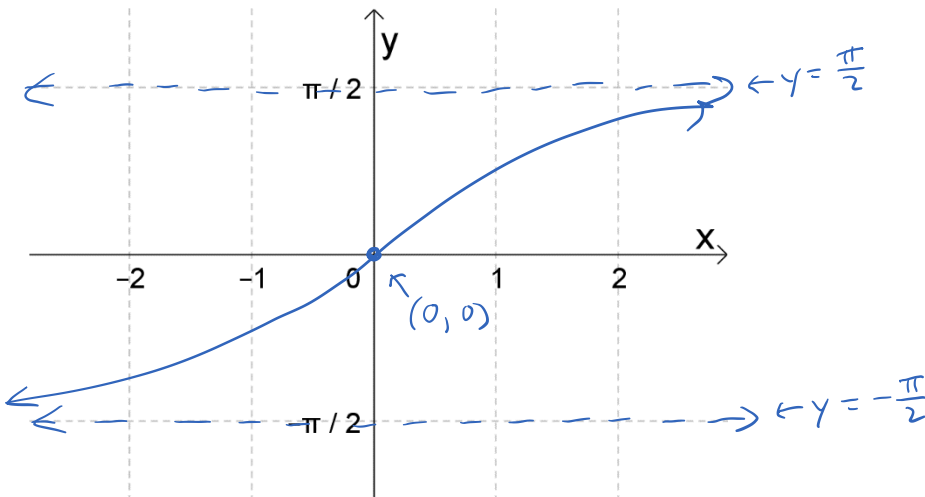
a) (3 points) $y = \ln x$



Domain: $(0, \infty)$

Range: $(-\infty, \infty)$

b) (3 points) $y = \arctan x$



Domain: $(-\infty, \infty)$

Range: $(-\frac{\pi}{2}, \frac{\pi}{2})$

2. Answer the following questions.

- a) (1 point) What is the term of $3x + 2x^{\frac{7}{2}} + x^2$ with the highest exponent? $2x^{\frac{7}{2}}$
- b) (1 point) Rewrite $\sqrt[4]{x^3}$ using rational exponents. $x^{\frac{3}{4}}$

3. Find the exact value without a calculator.

a) (1 point) $\sin \pi =$ 0

b) (1 point) $\cos \frac{3\pi}{4} =$ $-\frac{\sqrt{2}}{2}$

c) (1 point) $\sec \frac{11\pi}{6} =$ $\frac{2}{\sqrt{3}}$

d) (1 point) $\tan \left(-\frac{2\pi}{3}\right) =$ $\sqrt{3}$

4. The position of a particle $s(t)$ (in feet) is shown to the right as a function of t (in minutes). Find the average velocity of the particle over the following time intervals. Be sure to write the units of your answers.

a) (1 point) $t = 0$ to $t = 3$

Answer: $\frac{2}{3}$ ft/min

b) (1 point) $t = 3$ to $t = 5$

Answer: 0 ft/min

c) (1 point) $t = 0$ to $t = 8$

Answer: $-\frac{1}{4}$ ft/min

