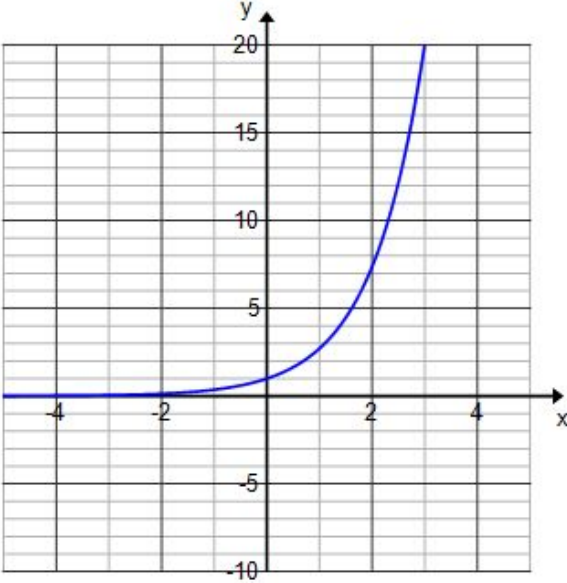
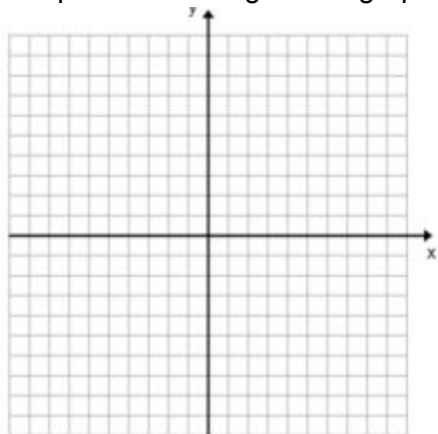


Math 1050 The Natural Exponential Function	Name
<p>1. Given the graph of <math>y = e^x</math> is graphed below, graph the following using transformations.</p>  <p>A. <math>y = -e^x</math>  B. <math>f(x) = 1 - e^x</math>  C. <math>g(x) = e^{x-3} + 4</math>  D. <math>h(x) = e^{-x} - 2</math></p>	<p>2. When a certain medical drug is administered to a patient, the number of milligrams remaining in the patient's bloodstream after <math>t</math> hours can be modeled by a CONTINUOUS function. If the starting amount is 50 mg and the RATE of decay is -20%, then how many milligrams will remain in the patient's bloodstream after 3 hours?</p> <p>Equation:</p>
<p>3. A radioactive substance decays in such a way that the amount of mass remaining after <math>t</math> days is modeled by a Continuous function <math>m(t) = 13e^{-0.015t}</math> where <math>m</math> is measured in kilograms.</p> <ol style="list-style-type: none"> <li>What is the mass at <math>t = 0</math></li> <li>What is the decay rate?</li> <li>How much remains after 45 days?</li> </ol>	<p>4. Doctors use radioactive iodine as a tracer in diagnosing certain thyroid gland disorders. This type of iodine decays in such a way that the mass remaining after <math>t</math> days is a continuous function. If the starting amount is 6 grams, and the rate of decay is 8.7%, find the equation.</p> <p>How much mass remains after 20 days?</p>
<p>5. An investment of \$2000 is invested at an interest rate of 3.5% per year compounded continuously. Find the value of the investment after the following years.</p> <ol style="list-style-type: none"> <li>2 years</li> <li>4 years</li> <li>12 years</li> </ol>	<p>6. If \$5,000 is invested in an account that earns 4.8% interest, find out the value after 10 years for each of the different investment types.</p> <ol style="list-style-type: none"> <li>Compounded Annually</li> <li>Compounded Semiannually</li> <li>Compounded Quarterly</li> <li>Compounded Continuously</li> </ol>

7. Graph the following on the graph



- A.  $y = 2^x$
- B.  $y = -5(2)^{x+6}$
- C.  $y = 2^{-x}$
- D.  $y = 5 + 2^x$

8. A deadly disease is doubling how many people it comes in contact with every 10 minutes. If 5 people are infected at 9am how many people will be infected at 11am?

9. Graph the following

$$f(x) = \frac{x^3 - 27}{x^2 - 1x - 6}$$

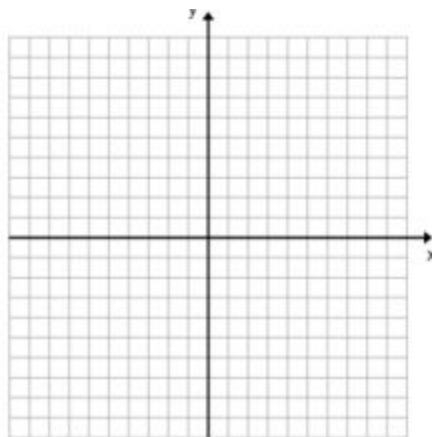
VA

HA

x-intercept(s)

y-intercept(s)

Slant Asy



10. Graph the following

$$f(x) = \frac{x^2 + 3x - 28}{x^2 + 10x + 21}$$

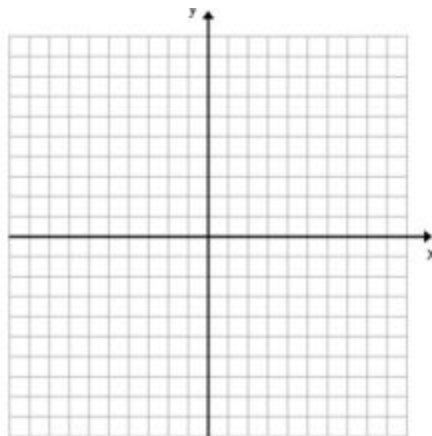
VA

HA

x-intercept(s)

y-intercept(s)

Slant Asy



11. Find the domains of the following:

a)  $f(x) = \frac{\sqrt{2+5x}}{x-3}$

b)  $f(x) = \frac{1}{\sqrt{x-2}}$

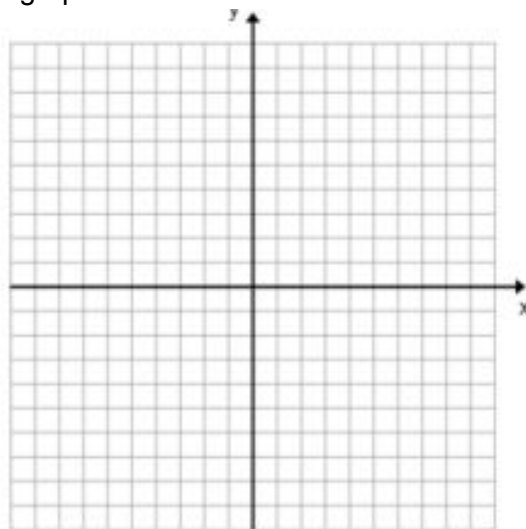
12.

13. Find the inverse of

$$f(x) = \frac{x+6}{x-5}$$

Graph both the function and the inverse function at the right.

14. graph 13



15. Find the zeros of

$$P(x) = 2x^4 + 3x^3 - 4x - 3 + 2$$

16. Graph 15

