

Name (printed legibly):

**Directions:** The quiz contains 20 problems, and each problem is worth one point. Place your answer in the blank provided to the right. For graphing questions, a set of axes are provided. **Calculators are not allowed.**

*For this quiz only, no partial credit will be given.*

1. Evaluate  $8^{-2/3}$ . You should have no exponents in your final answer.

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2. Find the exact value of  $\log_{10}\left(\frac{1}{10000}\right)$ .

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3. Find the exact value of  $\cos(2\pi/3)$ .

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4. Simplify the expression  $\left(\frac{3xy}{x^4y^{7/2}}\right)^2$ . Write your answer without negative exponents.

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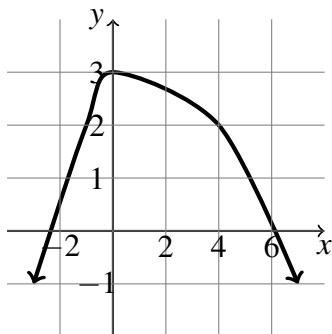
5. Write an equation in slope-intercept form (that is, in the form  $y = mx + b$ ) for the line that passes through the points  $(-2, 7)$  and  $(3, -9)$ .

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6. Expand and simplify  $(4x + 2)^2 - 8(x - 1)$ .

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7. Use the graph of  $f(x)$  below to estimate the value(s) of  $x$  such that  $f(x) = 2$ .



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8. For the function  $f(x) = \frac{2}{x}$ , find the expression  $f(12 + h) - f(12)$ . Simplify your answer and write your answer as a single fraction.

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9. Given the piecewise defined function below, determine the value(s) of  $x$  such that  $f(x) = -27$ .

$$f(x) = \begin{cases} 2x - 5 & x < 0 \\ x^3 & x \geq 0 \end{cases}$$

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10. Solve for  $x$  in the equation  $x^2 - 2x = 8$ .

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11. Solve for  $x$  exactly in the equation  $e^{2-5x} = \frac{1}{3}$ .

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12. Find all solutions to the equation  $2\cos(\theta) = 1$  in the interval  $[0, 2\pi]$ .

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13. A table of values for the function  $f(x)$  is given below. Use the table to determine  $f^{-1}(5)$ .

$x$	-5	0	5	10	15	20	25	30	35
$f(x)$	40	33	18	10	-4	6	5	-2	-1/2

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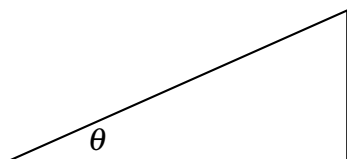
14. Solve the inequality  $9 - x^2 \leq 0$ . Give your answer in interval notation.

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15. Determine the domain of  $f(x) = \ln(x - 4)$ . Give your answer in interval notation.

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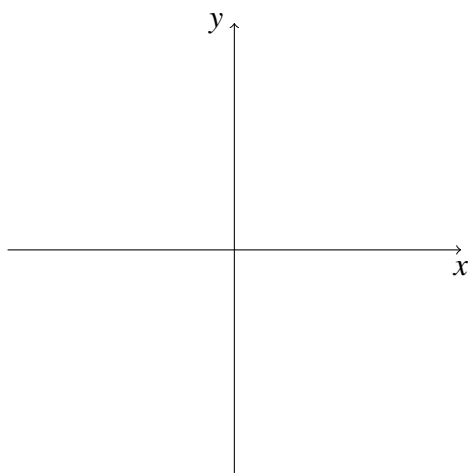
16. In the triangle below,  $\sin \theta = \frac{1}{5}$ . Determine  $\cos \theta$ .



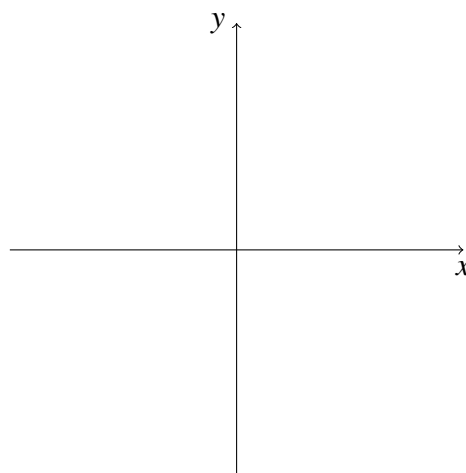
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Sketch graphs of the following functions. Label the  $x$ - and  $y$ -intercepts, if they exist. Draw in any asymptotes using dashed lines, and write the equation of the asymptote, if it exists.

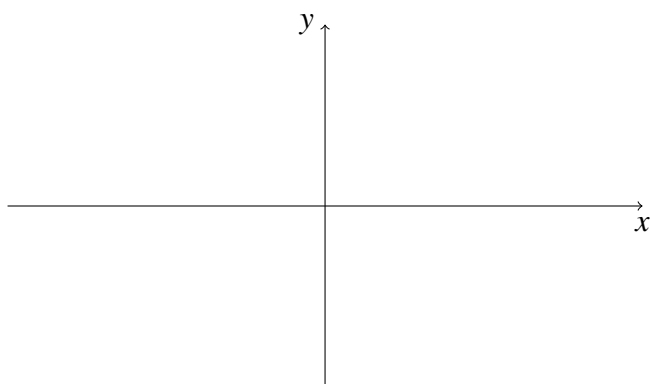
17.  $f(x) = (x+1)^3$



18.  $f(x) = 1 + e^x$



19.  $y = \cos(x)$  on the interval  $[-2\pi, 2\pi]$



20. Given the graph of  $f(x)$  below, draw the graph of  $-2f(x)$ .

