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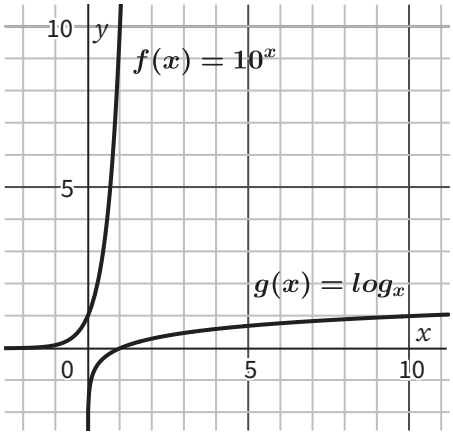
Lesson 5: Common Sense

Ready, Set, Go

Ready

The graphs of $f(x) = 10^x$ and $g(x) = \log x$ are shown in the same coordinate plane.

Make a list of the characteristics of each function.



1. $f(x) = 10^x$

2. $g(x) = \log x$

Each question below refers to the graphs of the functions $f(x) = 10^x$ and $g(x) = \log x$. State whether they are true or false. If they are false, correct the statement so that it is true.

3. Every graph of the function $g(x) = \log x$ will contain the point $(1, 0)$.

A. True **B.** False

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4. Both graphs have vertical asymptotes.

A. True **B.** False

5. The graphs of $f(x)$ and $g(x)$ have the same rate of change.

A. True **B.** False

6. The functions are inverses of each other.

A. True **B.** False

7. The range of $f(x)$ is the domain of $g(x)$.

A. True **B.** False

8. The graph of $g(x)$ will never reach 3.

A. True **B.** False

Set

Solve each equation. Write each answer as a logarithm and a decimal approximation.

9. $10^x = 0.1$

10. $10^{x-3} = 202$

11. $10^{x+5} - 53 = -124$

12. $\frac{10^{2x-1}}{3} = 75$

13. $4\left(10^{x-2}\right) + 3 = 2{,}021$

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14. $10^{5x} = 10^{2x-7}$

Solve the following systems of equations.

15. $\begin{cases} y = 10^x \\ y = 0.001 \end{cases}$

16. $\begin{cases} y = 10^x - 5 \\ y = -\frac{1}{2}x - 4 \end{cases}$

17. $\begin{cases} y = 10^x - 3 \\ y = -3x + 10 \end{cases}$

Go

Use long division to divide the following problems.

Write your answers as a quotient and a remainder. (Show each step.)

18. $9\overline{)\,2{,}179}$

19. $12\overline{)\,382}$

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20. $24\overline{)\,461}$

21. $13\overline{)\,4{,}297}$

22. $11\overline{)\,1{,}579}$

23. $62\overline{)\,9{,}885}$