

Graphs of Exponential Functions: Homework Exercises

Characterize the graph of each of the following, naming the domain, range, y-intercept, end behavior, and horizontal asymptote. Use this information to sketch the graph *by hand*, finding one additional point algebraically if necessary. Use your graphing calculator as a check only.

✓1. $y = 3^x$

2. $y = 4^x$

3. $y = 3^x + 2$

4. $y = 4^x + 2$

✓5. $y = 3^x + 5$

6. $y = 4^x + 3$

7. $y = 3^x - 2$

8. $y = 4^x - 3$

✓9. $y = 3^x - 5$

10. $y = 4^x - 5$

11. $y = 5 \cdot 3^x$

12. $y = 2 \cdot 4^x$

✓13. $y = 2 \cdot 3^x$

14. $y = 3 \cdot 4^x$

✓15. $y = \frac{1}{2} \cdot 3^x$

16. $y = \frac{1}{2} \cdot 4^x$

17. $y = 5 \cdot 3^x + 2$

18. $y = 2 \cdot 4^x + 3$

✓19. $y = 5 \cdot 3^x - 2$

20. $y = 2 \cdot 4^x - 3$

✓21. $y = -3^x$

22. $y = -4^x$

✓23. $y = -3^x + 2$

24. $y = -4^x + 3$

25. $y = -3^x - 1$

26. $y = -4^x - 5$

✓33. $y = \left(\frac{1}{3}\right)^x - 2$

✓27. $y = -5 \cdot 3^x - 2$

28. $y = -3 \cdot 4^x - 1$

34. $y = \left(\frac{1}{4}\right)^x - 3$

✓29. $y = \left(\frac{1}{3}\right)^x$

30. $y = \left(\frac{1}{4}\right)^x$

✓35. $y = 2\left(\frac{1}{3}\right)^x$

31. $y = -\left(\frac{1}{3}\right)^x$

32. $y = -\left(\frac{1}{4}\right)^x$

36. $y = 3\left(\frac{1}{4}\right)^x$