

Practice 8-7

Exponential Functions

Complete the table for each exercise.

1. Investment increases by 1.5 times every 5 yr.

Time	Value of Investment
Initial	\$800
5 yr	\$1200
10 yr	\$1800
15 yr	\$2700
20 yr	■
25 yr	■
■	■
■	■

2. The number of animals doubles every 3 mo.

Time	Number of Animals
Initial	18
3 mo	36
6 mo	72
9 mo	■
12 mo	■
■	■
■	■
■	■

3. The amount of matter halves every year.

Time	Amount of Matter
Initial	3200 g
1 yr	1600 g
2 yr	800 g
3 yr	■
■	■
■	■
■	■
■	■

Evaluate each function for the domain $\{-2, 0, 1, 2, 4\}$.

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|--------------------------------------|---|---------------------------------|
| 4. $y = 2^x$ | 5. $y = 3.1^x$ | 6. $y = 0.8^x$ |
| 7. $y = 2 \cdot 4^x$ | 8. $y = 10 \cdot 3^x$ | 9. $y = 25 \cdot 5^x$ |
| 10. $y = \left(\frac{2}{3}\right)^x$ | 11. $y = 100 \cdot \left(\frac{1}{10}\right)^x$ | 12. $y = \frac{1}{4} \cdot 8^x$ |

Graph each function.

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|---------------------------------|---------------------------------|--|
| 13. $y = 3^x$ | 14. $y = 6^x$ | 15. $y = 1.5^x$ |
| 16. $y = 7^x$ | 17. $y = 10 \cdot 5^x$ | 18. $y = 16 \cdot 0.5^x$ |
| 19. $y = \frac{1}{8} \cdot 2^x$ | 20. $y = \frac{1}{2} \cdot 4^x$ | 21. $y = 8 \cdot \left(\frac{5}{2}\right)^x$ |

Evaluate each function rule for the given values.

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|---|---|
| 22. $y = 5.5^x$ for $x = 1, 3,$ and 4 | 23. $y = 4 \cdot 1.5^x$ for $x = 2, 4,$ and 5 |
| 24. $y = 3 \cdot 4^x$ for $x = 1, 3,$ and 5 | 25. $y = 6^x$ for $x = 2, 3,$ and 4 |
| 26. $y = 0.7^x$ for $x = 1, 3,$ and 4 | 27. $y = 3.1^x$ for $x = 1, 2,$ and 3 |
| 28. $y = 180 \cdot 0.5^x$ for $x = 0, -2,$ and $-\frac{1}{2}$ | 29. $y = 4.3^x$ for $x = -2, -1,$ and 0 |
| 30. $y = 100 \cdot 0.1^x$ for $x = -4, -1,$ and 2 | 31. $y = 5^x$ for $x = -2, -3,$ and 4 |

Solve each equation.

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|--------------------------|-----------------------------------|
| 32. $5^x = 625$ | 33. $2 \cdot 4^x = 128$ |
| 34. $4^x = \frac{1}{64}$ | 35. $4 \cdot 5^x = \frac{4}{125}$ |