

Exponential Expressions and Functions

Date _____ Period _____

Simplify. Your answer should contain only positive exponents.

1) $-a \cdot -3a$

2) $-4n^0 \cdot n^2$

3) $(4m^{-1})^0$

4) $(-4x^{-3})^{-3}$

5) $\frac{3k}{k}$

6) $\frac{x^2}{2x^3}$

7) $\frac{n^4}{-n^2 \cdot (-2n^{-1})^{-1}}$

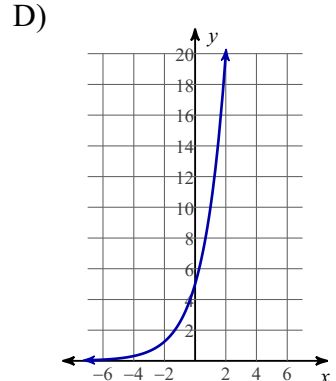
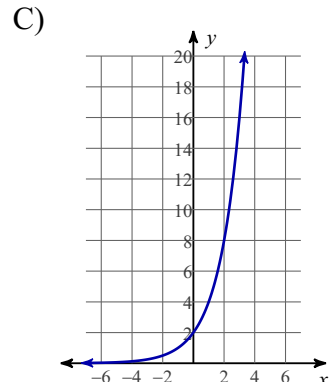
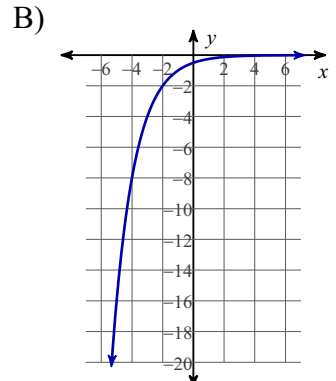
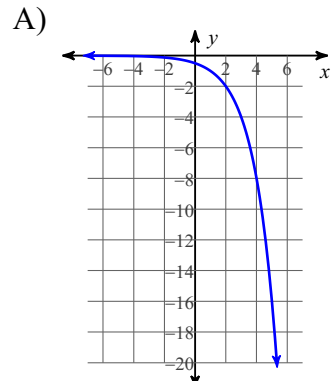
8) $\frac{a^{-4} \cdot -a^{-4}}{(-a^{-1})^{-1}}$

9) $\frac{(-2x^2)^{-4}}{-2x^{-4} \cdot x}$

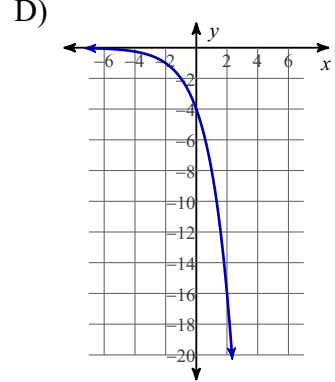
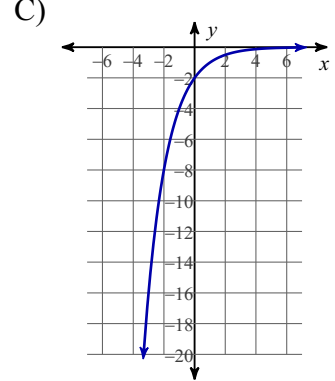
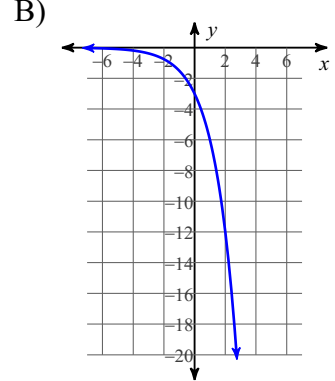
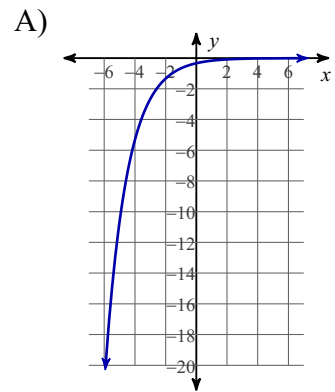
10) $\frac{(-x^4)^{-4} \cdot (2x^{-1})^4}{x}$

Sketch the graph of each function.

11) $y = -\frac{1}{2} \cdot 2^x$

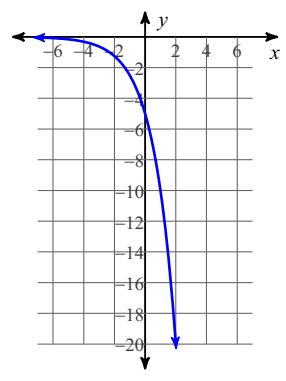


12) $y = -3 \cdot 2^x$

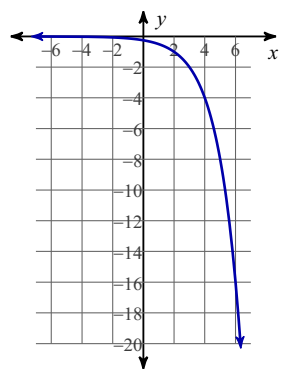


13) $y = -5 \cdot 2^x$

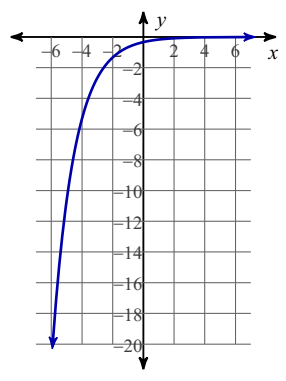
A)



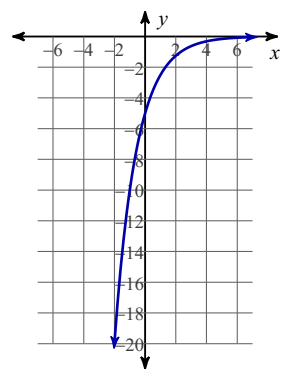
B)



C)

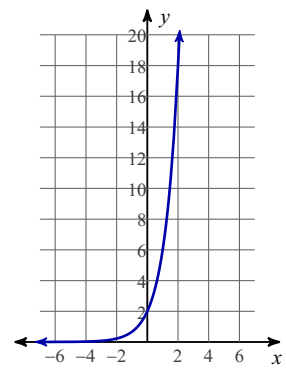


D)

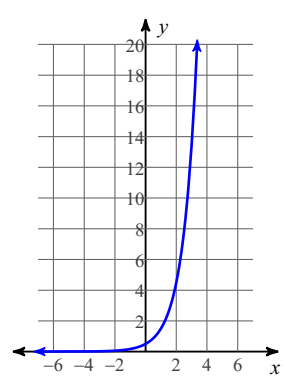


14) $y = \frac{1}{2} \cdot 3^x$

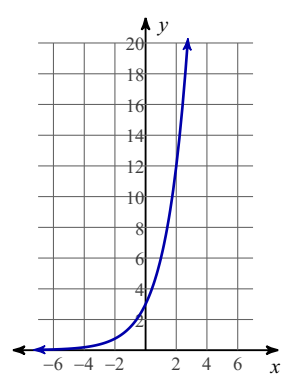
A)



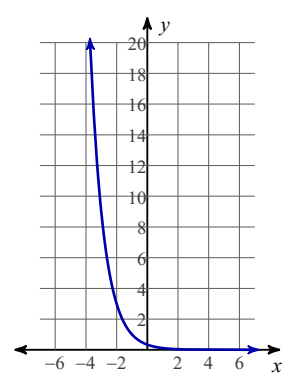
B)



C)

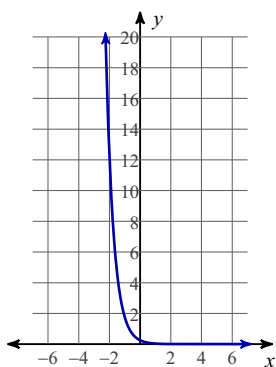


D)

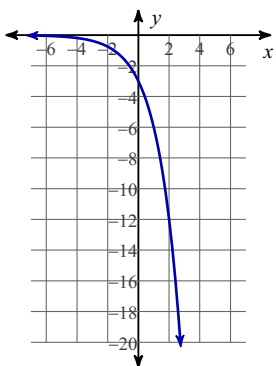


$$15) y = -\frac{1}{4} \cdot \left(\frac{1}{2}\right)^x$$

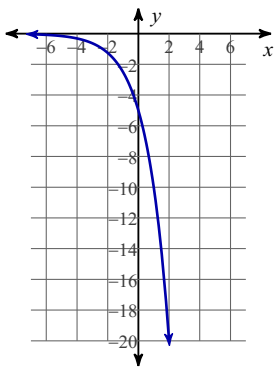
A)



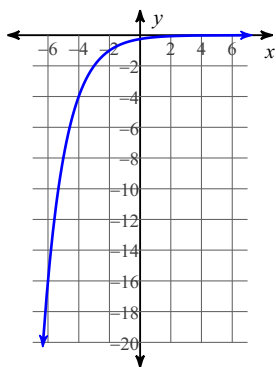
B)



C)

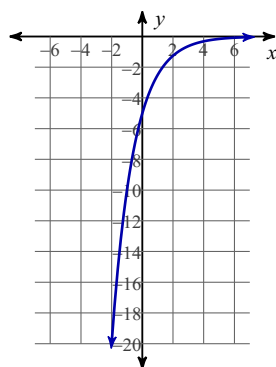


D)

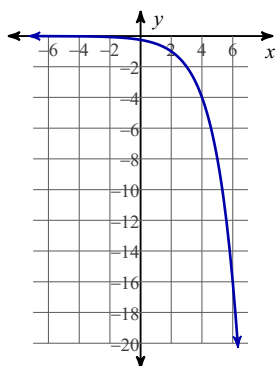


$$16) y = -4 \cdot \left(\frac{1}{2}\right)^x$$

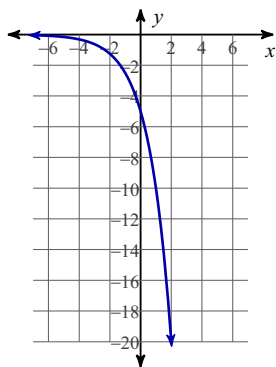
A)



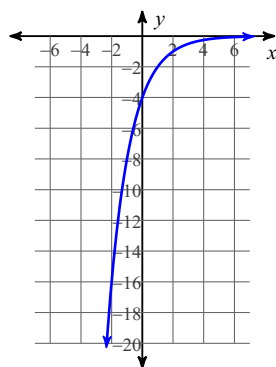
B)



C)



D)



Answers to Exponential Expressions and Functions

1) $3a^2$

2) $-4n^2$

3) 1

4) $-\frac{x^9}{64}$

5) 3

6) $\frac{1}{2x}$

7) $2n$

8) $\frac{1}{a^9}$

9) $-\frac{1}{32x^5}$

10) $\frac{16}{x^{21}}$

11) A

12) B

13) A

14) B

15) D

16) D