

11.2

SM3 Exponential Functions 2018-19

Name _____ Date _____ Period _____

Approximate the value using a calculator. Express answer rounded to three decimal places.

1. $5^{2.71}$

2. $e^{3.14}$

3. 2.1^3

The graph of an exponential function is given. Match the graph to one of the following functions. Use transformations to find the answers. Do not use a calculator.

a) $y = 3^x$

b) $y = 3^{-x}$

c) $y = -3^x$

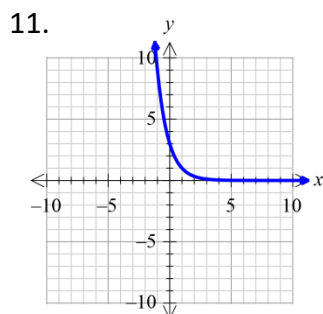
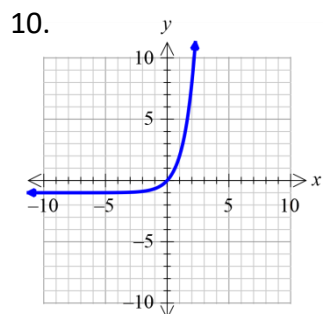
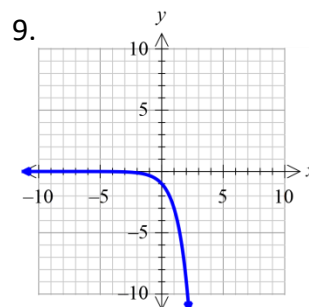
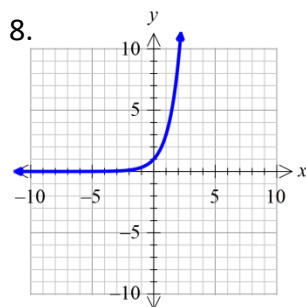
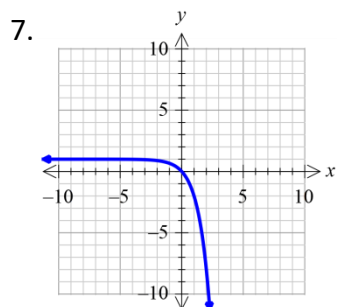
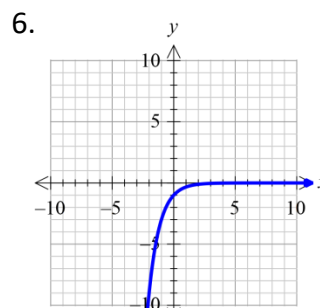
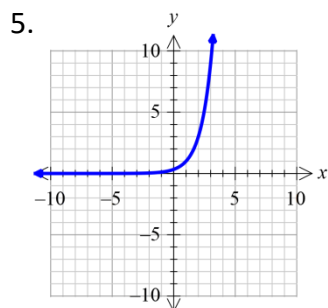
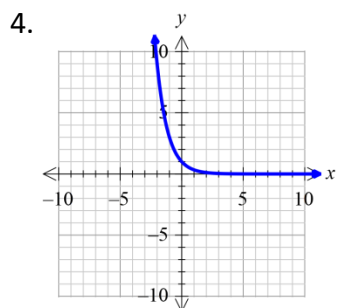
d) $y = -3^{-x}$

e) $y = 3^x - 1$

f) $y = 3^{x-1}$

g) $y = 3^{1-x}$

h) $y = 1 - 3^x$



Use transformations and 3 key points to graph each function. Determine the domain, range, and horizontal asymptote of each function. Use a table! No Graphing Calculator! Show work!

12. $f(x) = 2^x + 1$

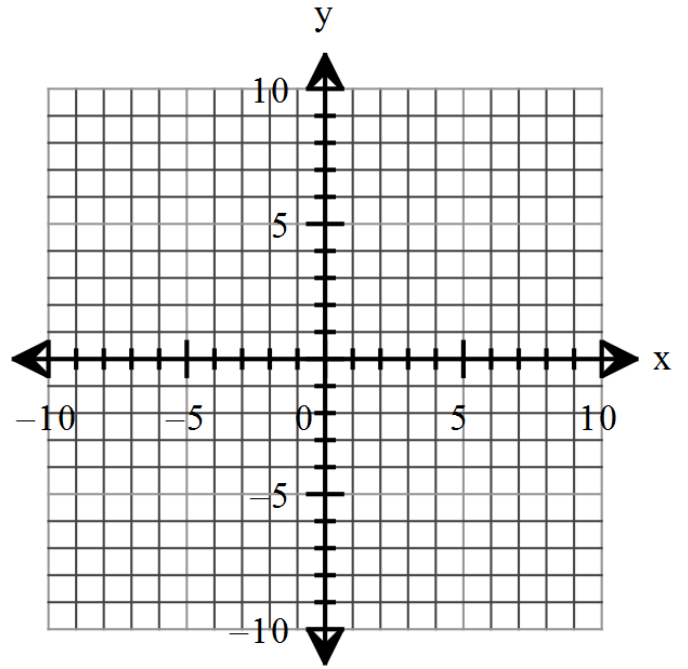
Domain: _____

Asymptotes: _____

Key points and transformations:

x	$f(x)$

x	$f(x)$



Range: _____

13. $f(x) = -3^{x-1}$

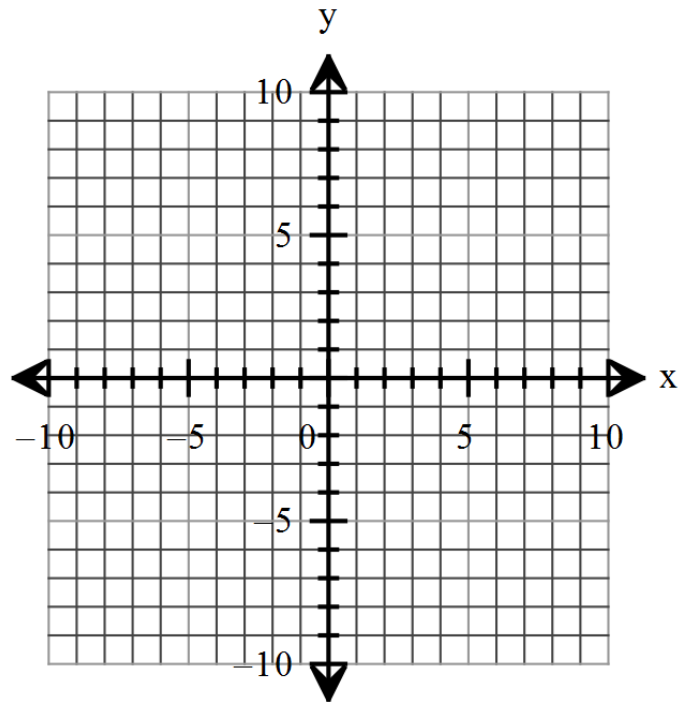
Domain: _____

Asymptotes: _____

Key points and transformations:

x	$f(x)$

x	$f(x)$



Range: _____

14. $f(x) = 3^{x/2} + 2$

Domain: _____

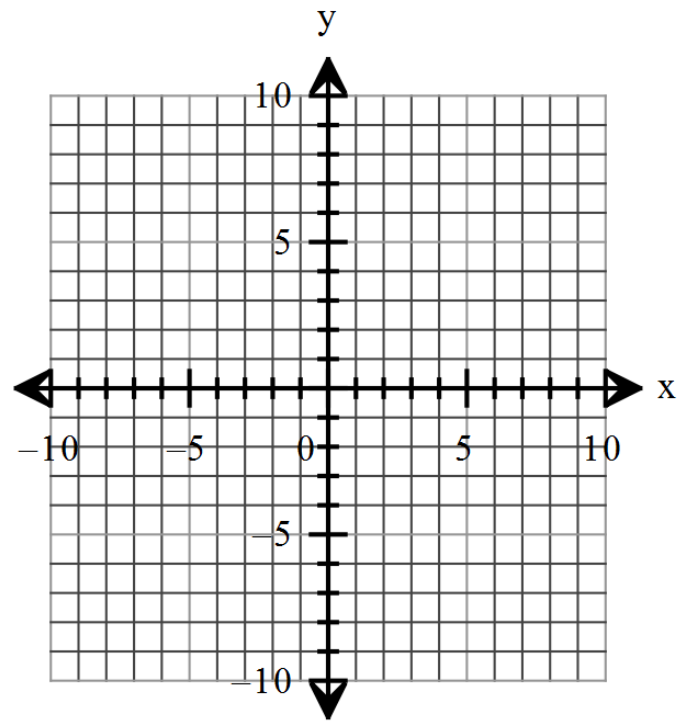
Asymptotes: _____

Key points and transformations:

x	$f(x)$

x	$f(x)$

Range: _____



15. $f(x) = 2^{-x} - 3$

Domain: _____

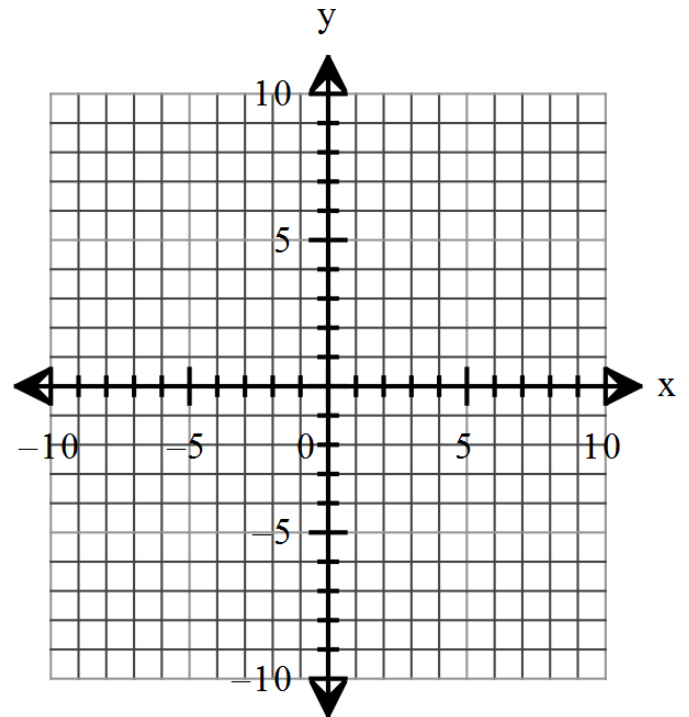
Asymptotes: _____

Key points and transformations:

x	$f(x)$

x	$f(x)$

Range: _____



Solve each equation using the one-to-one property for exponents. Show work! You may need to factor to solve.

16. $7^x = 7^3$

17. $\left(\frac{1}{4}\right)^x = \frac{1}{64}$

18. $3^{-x} = 81$

19. $4^{x^2} = 2^x$

20. $9^{-x+15} = 27^x$

21. $4^x \cdot 2^{x^2} = 16^2$

Review Exercises

Find the domain of the given functions. Write answers in interval notation. Show work!

22. $f(x) = \frac{x+2}{(x-3)(x+5)}$

23. $f(x) = \sqrt{-2x+7}$