Algebra: Graphing Exponential Functions

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Name: _____ Date: _____ Score: / 10

DIRECTIONS *State the domain, range, asymptote, or evaluate a key point for each function.*

1 Horizontal asymptote:

$$f(x) = 5^x$$

Answer: _____

2 State the domain:

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

Answer: _____

3 State the range:

f(x)=\left(\tfrac{1}{2}\right)^x

Answer: _____

4 State the domain:

$$f(x) = 2^{x+1}$$

Answer: _____

5 State the range:

$$f(x) = -2^x$$

Answer: _____

6 y-intercept:

$$f(x) = 3^x$$

Answer: _____

7 Horizontal asymptote:

$$f(x) = 2^x$$

Answer: _____

8 State the domain:

$$f(x) = e^x$$

Answer: _____

9 State the range:

$$f(x) = 2^x - 1$$

Answer: _____

10 State the range:

$$f(x) = 2^x + 3$$

Answer: _____

Answer Key & Solutions

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TEACHER NOTES *Horizontal asymptote is y=0 by default; shifts change it. Growth: b>1. Decay: 0<b<1.*

1 Horizontal asymptote:

= $y = 0$

$f(x) = 5^x$

2 State the domain:

= $(-\infty, \infty)$

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

3 State the range:

= $(0, \infty)$

f(x)=\left(\tfrac{1}{2}\right)^x

4 State the domain:

= $(-\infty, \infty)$

$f(x) = 2^{x+1}$

5 State the range:

= $(-\infty, 0)$

$f(x) = -2^x$

6 y-intercept:

= $(0, 1)$

$f(x) = 3^x$

7 Horizontal asymptote:

= $y = 0$

$f(x) = 2^x$

8 State the domain:

= $(-\infty, \infty)$

$f(x) = e^x$

9 State the range:

= $(-1, \infty)$

$f(x) = 2^x - 1$

10 State the range:

= $(3, \infty)$

$f(x) = 2^x + 3$