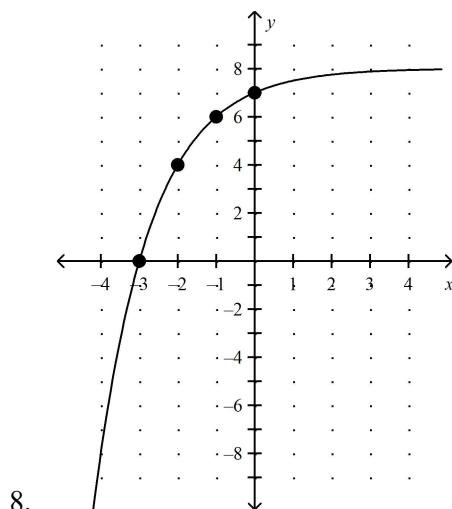
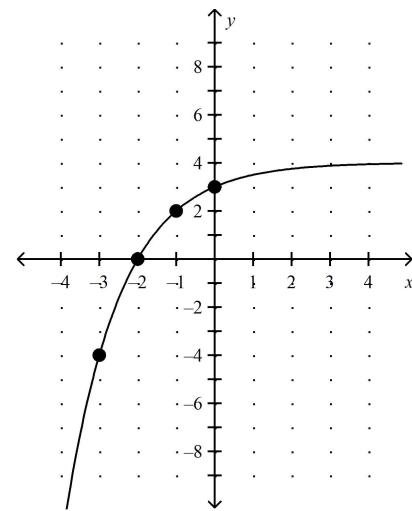
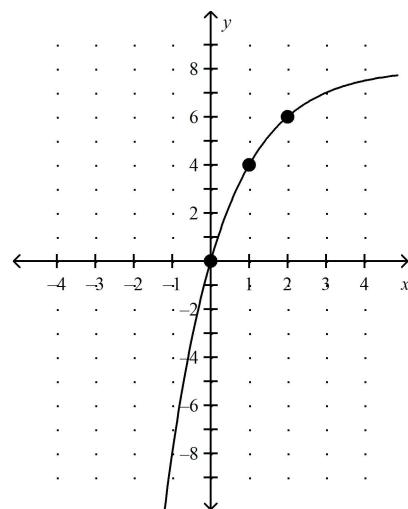
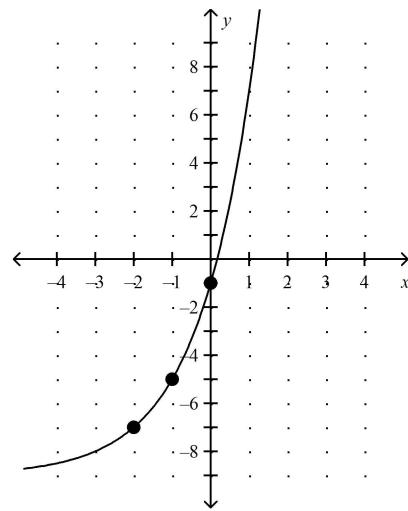


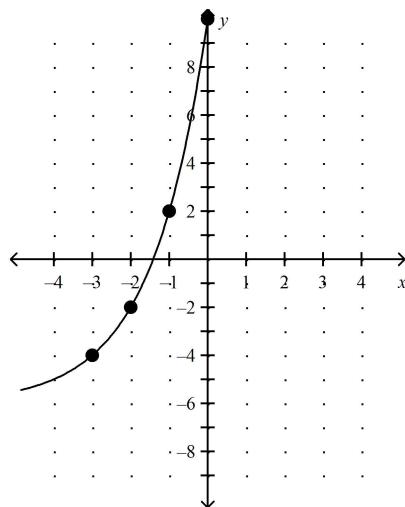
MCR3U - WS - Transformations & Graphing of Exponential Functions

Determine the exponential equation given:

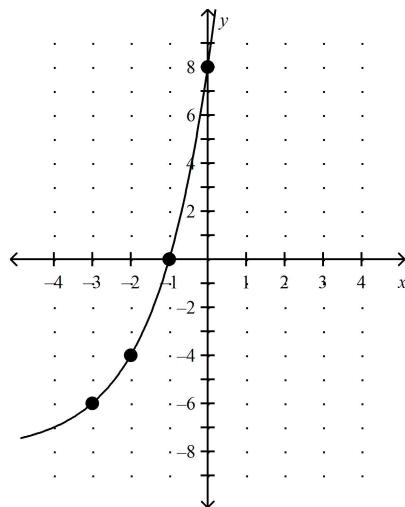
1. (a) common ratio 2.
 (b) horizontal asymptote at $y = 7$.
 (c) y-intercept of -2 .
2. (a) common ratio $\frac{1}{3}$.
 (b) horizontal asymptote at $y = 3$.
 (c) y-intercept of -7 .
3. (a) common ratio 2.
 (b) horizontal asymptote at $y = 6$.
 (c) y-intercept of -3 .
4. (a) common ratio $\frac{1}{5}$.
 (b) horizontal asymptote at $y = 17$.
 (c) y-intercept of 21 .

Determine the exponential equation for each of the following graphs:

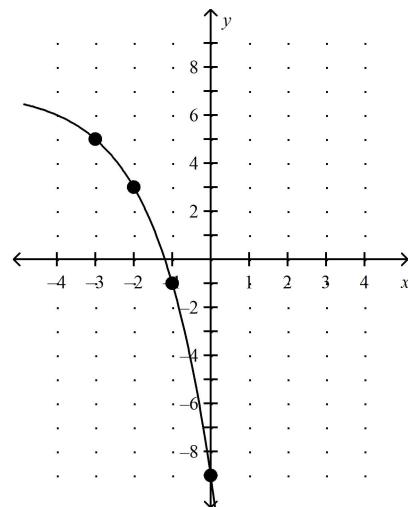




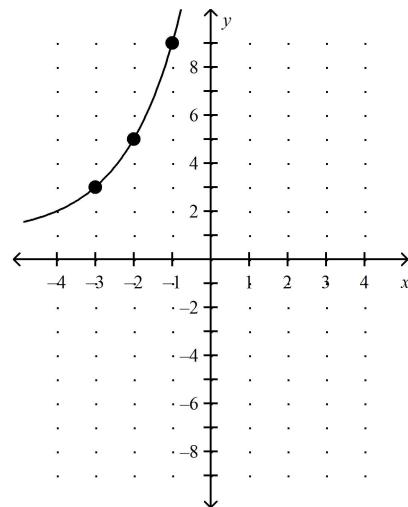
9.



10.



11.



12.

Rewrite the following using only vertical transformations (i.e., in the form $y = a(b)^x + q$).

13. $y = 2(4)^{3(x-2)} + 4$

15. $y = -2(9)^{\frac{-1}{2}(x+4)} - 1$

14. $y = 4(32)^{\frac{-1}{5}(x-1)} + 4$

16. $y = 5(625)^{\frac{1}{4}(x-5)} - 3$

Determine the equation of the exponential function corresponding to the following points.

17. $(-2, 169), (-3, 49), (-4, 29), (-5, \frac{77}{3})$

19. $(20, -\frac{19}{2}), (15, -\frac{7}{2}), (10, -\frac{1}{2}), (5, 1)$

18. $(-11, -\frac{31}{6}), (-7, -\frac{67}{6}), (-3, -\frac{79}{6}), (1, -\frac{83}{6})$

20. $(5, -14), (3, 16), (1, 21), (-1, \frac{131}{6})$

MCR3U - WS - Transformations & Graphing of Exponential Functions
Answer Section

1. ANS:

$$y = -9(2^x) + 7$$

PTS: 1

2. ANS:

$$y = -10\left(\frac{1}{3}\right)^x + 3$$

PTS: 1

3. ANS:

$$y = -9(2^x) + 6$$

PTS: 1

4. ANS:

$$y = 4\left(\frac{1}{5}\right)^x + 17$$

PTS: 1

5. ANS:

$$y = 4(2^{x+1}) - 9$$

$$y = 4\left(\frac{1}{2}\right)^{-(x+1)} - 9$$

PTS: 1

6. ANS:

$$y = -4(2^{-(x-1)}) + 8$$

$$y = -4\left(\frac{1}{2}\right)^{x-1} + 8$$

PTS: 1

7. ANS:

$$y = -4(2^{-(x+2)}) + 4$$

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

PTS: 1

8. ANS:

$$y = -4\left(2^{-(x+2)}\right) + 8$$

$$y = -4\left(\frac{1}{2}\right)^{x+2} + 8$$

PTS: 1

9. ANS:

$$y = 4\left(2^{x+2}\right) - 6$$

$$y = 4\left(\frac{1}{2}\right)^{-(x+2)} - 6$$

PTS: 1

10. ANS:

$$y = 4\left(2^{x+2}\right) - 8$$

$$y = 4\left(\frac{1}{2}\right)^{-(x+2)} - 8$$

PTS: 1

11. ANS:

$$y = -4\left(2^{x+2}\right) + 7$$

$$y = -4\left(\frac{1}{2}\right)^{-(x+2)} + 7$$

PTS: 1

12. ANS:

$$y = 4\left(2^{x+2}\right) + 1$$

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

PTS: 1

13. ANS:

transformations = 4

PTS: 1

14. ANS:

transformations = 5

PTS: 1

15. ANS:

transformations = 6

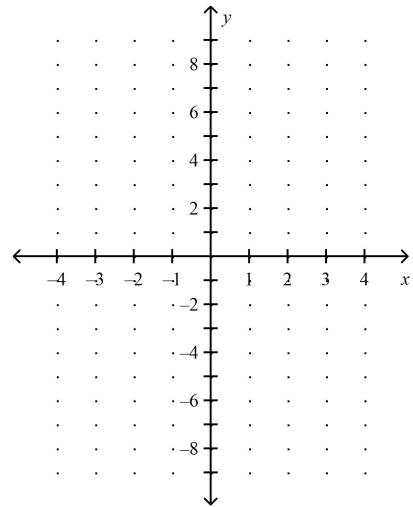
PTS: 1

16. ANS:

transformations = 4

PTS: 1

17. ANS:



$$y = 4(6^{x+4}) + 25$$

$$y = 4\left(\frac{1}{6}\right)^{-x+4} + 25$$

PTS: 1

18. ANS:

$$y = \left(3^{-0.25(x+3)}\right) - 14.16666667$$

$$y = \left(\frac{1}{3}\right)^{0.25(x+3)} - 14.16666667$$

PTS: 1

19. ANS:

$$y = -3\left(2^{0.2(x-10)}\right) + 2.5$$

$$y = -3\left(\frac{1}{2}\right)^{-0.2(x-10)} + 2.5$$

PTS: 1

20. ANS:

$$y = -\left(6^{0.5(x-1)}\right) + 22$$

$$y = -\left(\frac{1}{6}\right)^{-0.5(x-1)} + 22$$

PTS: 1