

Pre-Calculus 12-Chapter 4 Practice Test

1. a)

x	y
-2	11.1
-1	3.3
0	1
1	0.3
2	0.09

See graphs

b) domain $\{x \mid x \in \mathbb{R}\}$
 range $\{y \mid y > 0, y \in \mathbb{R}\}$,
 y-intercept 1, Function decreasing,
 horizontal asymptote $y=0$

2. a) horizontal translation of 3 units right
 b) vertical translation of 4 units down
 c) reflection in the x-axis, vertical stretch by a factor of 3, and a vertical translation of 2 units up

3. a) $y = 4(5)^{-2(x+4)} + 1$ b) $y = -3\left(\frac{1}{2}\right)^{4(x-2)} - 1$
 See graphs

4. a) b^2 b) b^{-2} c) b^5 5. a) $x = -\frac{3}{2}$ b) $x = \frac{12}{11}$

6. a) $x \approx -4.30$ b) $x \approx -6.13$

7. a) 25 b) -2 c) 3.5 d) 16 e) 0.01

8. a) Reflect in the x-axis, stretch horizontally about the y-axis by a factor of $\frac{1}{3}$, and translate 12 units right and 2 units up.

b) Reflect in the y-axis, stretch vertically about the x-axis by a factor of $\frac{1}{4}$, and translate 6 units right and 7 units down

9. a) $x = -8$ b) domain $\{x \mid x > -8, x \in \mathbb{R}\}$, range $\{y \mid y \in \mathbb{R}\}$
 c) y-intercept 15 d) x-intercept -7.75

10 a) $5 \log_5 x - \log_5 y - \frac{1}{3} \log_5 z$

b) $\frac{1}{2} (\log x + 2 \log y - \log z)$

11. a) $\log \frac{xz^2}{y^3}$

b) $\log_7 \frac{x}{y^{\frac{1}{2}} z^{\frac{3}{2}}}$

12 a) $\log \sqrt{x}, x > 0$

b) $\log \frac{x-5}{x+5}, x < -5 \text{ or } x > 5$

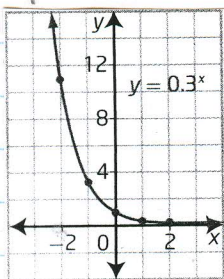
13 a) 2 b) 0.5

14 a) 1.46 b) 4.03 15. a) 5 b) 10 c) $\frac{5}{3}$ d) -4.25

16 6.4 years 17 2.5 h

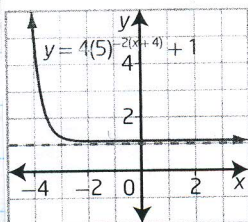
Graphs

1. a)



3.

a) $y = 4(5)^{-2(x+4)} + 1$



b) $y = -3\left(\frac{1}{2}\right)^{4(x-2)} - 1$

