Chapter 8 Review Extra Practice Answers

1 a) $x = 4^y$, $y = \log_4 x$

b) $x = \left(\dfrac{2}{5}\right)^y$, $y = \log_{\frac{2}{5}} x$

c) $x = (1.2)^y$, $y = \log_{1.2} x$

d) $x = 0.2^y$, $y = \log_{0.2} x$

2. a) vertical stretch by a factor of 4, horizontal stretch by a factor of 2, vertical translation 3 units up

b) vertical compression by a factor of $\frac{2}{5}$, reflection in the y-axis

c) horizontal compression by a factor of $\frac{1}{3}$, horizontal translation 2 units to the left, vertical translation $\frac{7}{8}$ units down

d) vertical stretch by a factor of 3, horizontal translation 6 units to the right, reflection in the y-axis

3. a) $x = -8$

b) $x = \dfrac{1}{2}$

c) $x = \dfrac{1}{5}$

d) $x = 4.5$

e) $x = \dfrac{1}{6}$

f) $x = \dfrac{4}{9}$

4. a) $\log_3 64 + \log_3 25 - \log_3 100$ or $\dfrac{2}{3}\log_3 64$

b) $3\log_3 25 - 2\log_3 64$

c) $\dfrac{1}{3}\log_3 25 + \dfrac{1}{3}\log_3 100 - \dfrac{4}{9}\log_3 64$

d) $\dfrac{1}{2}\log_3 64 + \dfrac{1}{2}\log_3 25 + \dfrac{1}{2}\log_3 100 - 2\log_3 25$

5. a) $x = 3$

b) $x = 5$

c) $x = 5$

d) $x = 5$

6. a) $x = \dfrac{10}{7}$

b) $x = 2$

c) $x = -9$

d) $x = -10$

7. a) $x = 10$

b) $x = 16$

c) $x = 12$

d) $x = 3$

8. a) $n = 4.586$

b) $n = 10.762$

c) $n = 54.136$

d) $n = 0.682$

e) $n = 28.243$

f) $n = 87.280$

9. a) $A(n) = 1040(1.023)^n$

b) 130 years

c) 2153

d) 30 people/year

e) 37 people/year

f) 25 people/year

g) 39 people/year