

HW44 $y = a(b)^x$

A2

1. $(4, 1536) \text{ ; } (8, 393,216)$

$$\frac{393,216}{1536} = \frac{a(b)^8}{a(b)^4}$$

$$(256)^{1/4} = (b^4)^{1/4}$$

$$4 = b$$

$$1536 = a(4)^4$$

$$1536 = a(256)$$

$$6 = a$$

$$y = 6(4)^x$$

4. $(3, 40.5) \text{ ; } (6, 136,6875)$

$$\frac{136,6875}{40.5} = \frac{a(b)^6}{a(b)^3}$$

$$(3.375)^{1/3} = (b^3)^{1/3}$$

$$1.5 = b$$

$$40.5 = a(1.5)^3$$

$$\frac{40.5}{3.375} = \frac{3.375a}{3.375}$$

$$12 = a$$

$$y = 12(1.5)^x$$

2. $(2, 196) \text{ ; } (5, 67,228)$

$$\frac{67,228}{196} = \frac{a(b)^5}{a(b)^2}$$

$$(343)^{1/3} = (b^3)^{1/3}$$

$$7 = b$$

$$196 = a(7)^2$$

$$\frac{196}{49} = \frac{49a}{49}$$

$$4 = a$$

$$y = 4(7)^x$$

5. $(1, 20.16) \text{ ; } (3, 800.1504)$

$$\frac{800.1504}{20.16} = \frac{a(b)^3}{a(b)^1}$$

$$(39.69)^{1/2} = (b^2)^{1/2}$$

$$6.3 = b$$

$$\frac{20.16}{6.3} = \frac{a(6.3)^1}{6.3}$$

$$3.2 = a$$

$$y = 3.2(6.3)^x$$

3. $(3, 540) \text{ ; } (8, 4,199,040)$

$$\frac{4,199,040}{540} = \frac{a(b)^8}{a(b)^3}$$

$$(7776)^{1/5} = (b^5)^{1/5}$$

$$6 = b$$

$$540 = a(6)^3$$

$$\frac{540}{216} = \frac{216a}{216}$$

$$2.5 = a$$

$$y = 2.5(6)^x$$

6. $(4, 1875) \text{ ; } (7, 234,375)$

$$\frac{234,375}{1875} = \frac{a(b)^7}{a(b)^4}$$

$$(125)^{1/3} = (b^3)^{1/3}$$

$$5 = b$$

$$1875 = a(5)^4$$

$$\frac{1875}{625} = \frac{625a}{625}$$

$$3 = a$$

$$y = 3(5)^x$$

7. a) $y = 1000(1.05)^n$

b) $y = 1000(1.05)^{10}$

$y = \$1628.89$

8. a) $y = 2000(1.08)^n$

b) $y = 2000(1.08)^{20}$

$y = 9,321$ people

c) $y = 2000(1.08)^{-5} \leftarrow 5$ years ago

$y = 1361$ people

d) $y = 2000(1.08)^{-10}$

$y = 926$ people