

$$5. (a) x = \ln(7.389) = 2.00$$

$$(b) x = e^{-2.5} = 0.0821$$

$$(c) x = 1500 e^{-(0.042)(5.3)} = 1500 e^{-0.2226} \\ = 1500(0.800) = 1200$$

$$(d) 2 = e^{4x}$$

$$\ln(2) = \ln(e^{4x})$$

$$\ln(2) = 4x$$

$$x = \frac{\ln(2)}{4} = \frac{0.693}{4} = 0.173$$

$$(e) 15 = 30 e^{-(0.05)x}$$

$$\frac{15}{30} = e^{-(0.05)x}$$

$$0.50 = e^{-0.05x}$$

$$\ln(0.50) = \ln(e^{-0.05x})$$

$$-0.693 = -0.05x$$

$$x = \frac{-0.693}{-0.05} = 13.9 \approx 14$$

$$6. (a) a+x=b$$

$$x = b-a$$

$$(b) a-x=b-c$$

$$a = b-c+x$$

$$a-b+c = x$$

$$(c) \frac{a+b}{c} = \frac{d}{x}$$

$$\left(\frac{a+b}{c}\right)x = d$$

$$(a+b)x = dc$$

$$x = \frac{dc}{a+b}$$

$$(d) ax(b-x) = -cx \quad (x=0)$$

$$a(b-x) = -c$$

$$ab - ax = -c$$

$$ab+c = ax$$

$$x = \frac{ab+c}{a} \text{ or } x=0.$$