

$$1) y = 3\left(\frac{5}{2}\right)^x$$

Exp Growth.

$$\text{Inc. } 1+r = \frac{5}{2}$$

$$r = \frac{3}{2}$$

$$\boxed{1.50\%}$$

$$2) y = 7(1.4)^x$$

Exp Growth.

$$\text{Inc. } 1+r = 1.4$$

$$r = .4$$

$$\boxed{40\%}$$

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

Exp Decay.

$$\text{Dec. } 1-r = \frac{1}{2}$$

$$\boxed{r = 50\%}$$

$$4) y = -(0.2)^x$$

Exp. Decay

$$1-r = .2$$

$$-r = -.8$$

$$r = .8$$

$$\boxed{r = 80\%}$$

$$5) y = a \cdot b^x$$

$$y = 500(1+r)^x$$

$$y = 500(1+.03)^{10}$$

$$\boxed{y = \$671.96}$$

$$6) y = a \cdot b^x$$

$$y = 4500(1-.122)^x$$

$$y = 4500(.878)^2$$

$$\boxed{= \$3468.98}$$

$$⑦ y = a \cdot b^x$$

$$y = 123.5 \text{ mil} (1 + .0035)^x$$

$$y = 123.5 \text{ mil} (1.0035)^x$$

$$y = 123.5 \text{ mil} (1.0035)^{10}$$

$$y = \boxed{127.89 \text{ mil}}$$

⑨ Compound Cont.

①

$$A = P e^{rt}$$

$$A = 2100 e^{.057(10)}$$

$$A = \boxed{\$3713.36}$$

⑧ ① 38.5 cars. / 100 pe

② Growth Factor 1.14

$$C. 1+r = 1.14$$

$$r = .14$$

140% increase

③ Comd. Quarterly

$$A = P \left(1 + \frac{r}{n}\right)^{nt}$$

$$A = 2100 \left(1 + \frac{.057}{4}\right)^{4(10)}$$

$$A = 2100 (1.01425)^{40}$$

$$A = \boxed{3698.45}$$

make sure you know the formulas!

10 a  $125^{x-3} = 625^{3x-2}$   
 $(5^3)^{x-3} = (5^4)^{3x-2}$   
 $5^{3x-9} = 5^{12x-8}$   
 $3x-9 = 12x-8$   
 $-1 = 9x$   
 $\frac{-1}{9} = x$

b  $\sqrt{81} = 243^{x-4}$   
 $(3^4)^{1/2} = (3^5)^{x-4}$   
 $3^2 = 3^{5x-20}$   
 $2 = 5x-20$   
 $22 = 5x$   
 $\frac{22}{5} = x$

c.  $36^x = \left(\frac{1}{6}\right)^{2x-1}$   
 $6^{2x} = (6^{-1})^{2x-1}$   
 $6^{2x} = 6^{-2x+1}$   
 $2x = -2x+1$   
 $4x = 1$   
 $\frac{1}{4} = x$