1. Average rate of change is _____ \$/year.

2.   (a)   (b)   (c)   (d)   (e)

3. The desert spans _____ sq. miles after nine years.

4. $A =$ _____ .

5. The equilibium price is _____ dollars.

6.   (a)   (b)   (c)   (d)   (e)

7. Invest _____ dollars in the savings account.

8.   (a)   (b)   (c)   (d)   (e)

9. The average rate of change over $1 \leq x \leq 4$ is _____ .

10. The budget takes _____ years to triple.

11.   (a)   (b)   (c)   (d)   (e)

12. $t =$ _____ .

1. The typical price of gas per gallon at a local station is given below for various years.

Year	1990	1992	1994	1996	1998
Price	$1.38	$1.23	$1.43	$1.51	$1.86

According to this table, what is the average rate of change of gas price (measured in dollars per gallon per year) over the period 1992-1996?

2. Every year the population of Yuba County increases by 1,600 people. If the 1995 population was 21,000, then the population t years after 1995 is given by

(a) $P(t) = 21,000 + 1,600t$ (b) $P(t) = 21,000(1,600)^t$

(c) $P(t) = 1,600 + 21,000t$ (d) $P(t) = 21,000 + t^{1,600}$

(e) none of these

3. The size of a desert is proportional to the square root of the years elapsed since the beginning of a drought. If four years into the drought, the desert spans 20 square miles, then nine years into the drought it spans how many square miles?

4. Suppose the table below consists of values for an exponential function $y(x)$. Determine the number A.

x	0	1	2
y	5	21	A

5. If the demand for a product at price p is given by $D(p) = 1000 - 8p$ and the supply is given by $S(p) = 4p + 400$, then what is the equilibrium price?

6. The fixed costs at a refrigerator plant are $12,000 per day and the variable costs are $120 per refrigerator. If the refrigerators sell for $300 each, then the daily profit function $\pi(q)$ based on the production and sale of q refrigerators is

(a) $\pi(q) = 180q - 12,000$ (b) $\pi(q) = 180q + 12,000$

(c) $\pi(q) = 300q$ (d) $\pi(q) = 300q + 12,000$

(e) none of these

7. How much money should be invested in a savings account paying 6% annual interest compounded continuously so that in 5 years, $12,000 has accumulated? (Round to the nearest whole dollar.)

8. Write the function

$$y = (3x^2)^{-4} \text{ as a power function in the form } y = kx^p.$$

(a) $y = \frac{1}{81}x^2$ (b) $y = 3x^{-8}$

(c) $y = \frac{1}{3}x^8$ (d) $y = \frac{1}{81}x^{-8}$

(e) none of these

9. Compute the average rate of change for the function

$$f(x) = 4x^3 \text{ over the interval } 1 \leq x \leq 4$$

10. Every year a company increases its advertising budget by 12%. How many years does it take for the budget to triple?

11. Every hour after an injection, the amount of a drug left in the body decreases by 15%. If initially, there are .05 milligrams injected, then the amount $M(t)$ remaining after t hours is given in milligrams by:

(a) $M(t) = .05t^{.15}$ (b) $M(t) = .05(.15)^t$

(c) $M(t) = .15t + .05$ (d) $M(t) = .05(.85)^t$

(e) none of these

12. Solve for t in the equation:

$$15e^{4t} = 5(2^t).$$