

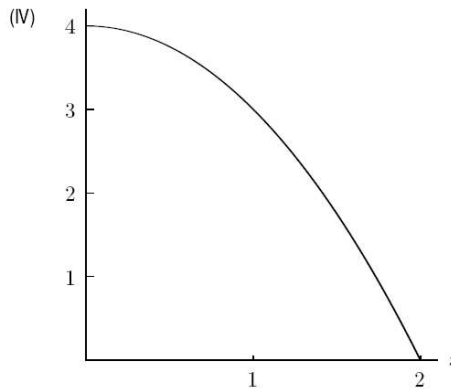
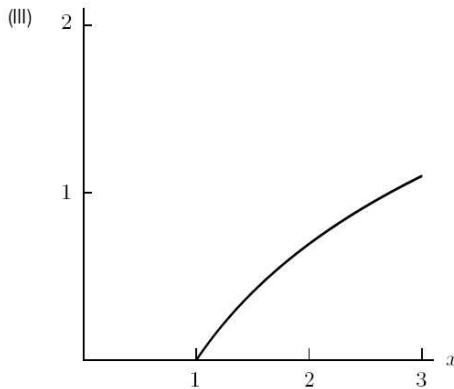
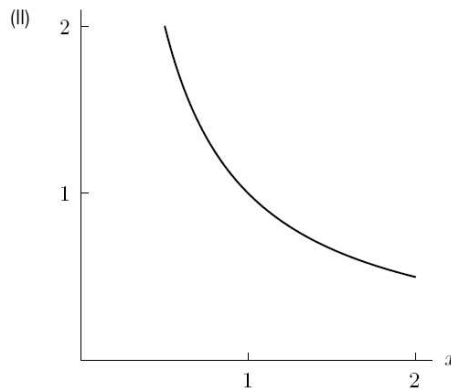
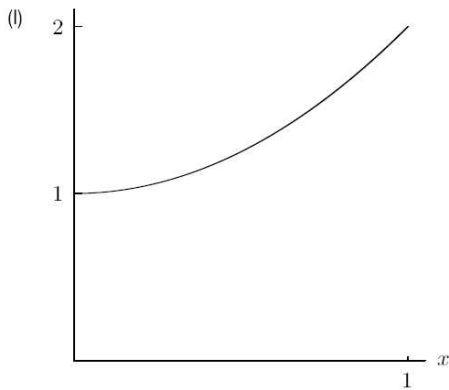
Classroom Voting Questions: Precalculus

1.2 Exponential Functions

1. The graph of a function is either concave up or concave down.

- (a) True
- (b) False

2. Which graph shows a function that is decreasing and concave up? Which graph shows a function that is increasing and concave down?



- (a) I, II
- (b) IV, I
- (c) II, I
- (d) II, III
- (e) IV, III

3. Every exponential function has a vertical intercept.

- (a) True
- (b) False

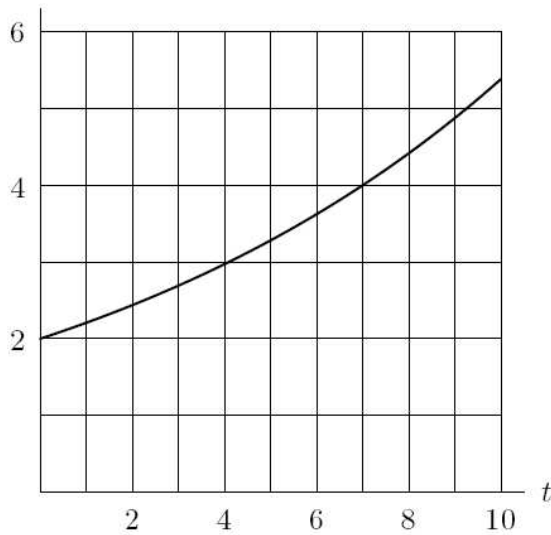
4. Every exponential function has a horizontal intercept.

- (a) True
- (b) False

5. Let $f(x) = ab^x$, with $b > 0$. Then $\frac{f(x+h)}{f(x)} =$

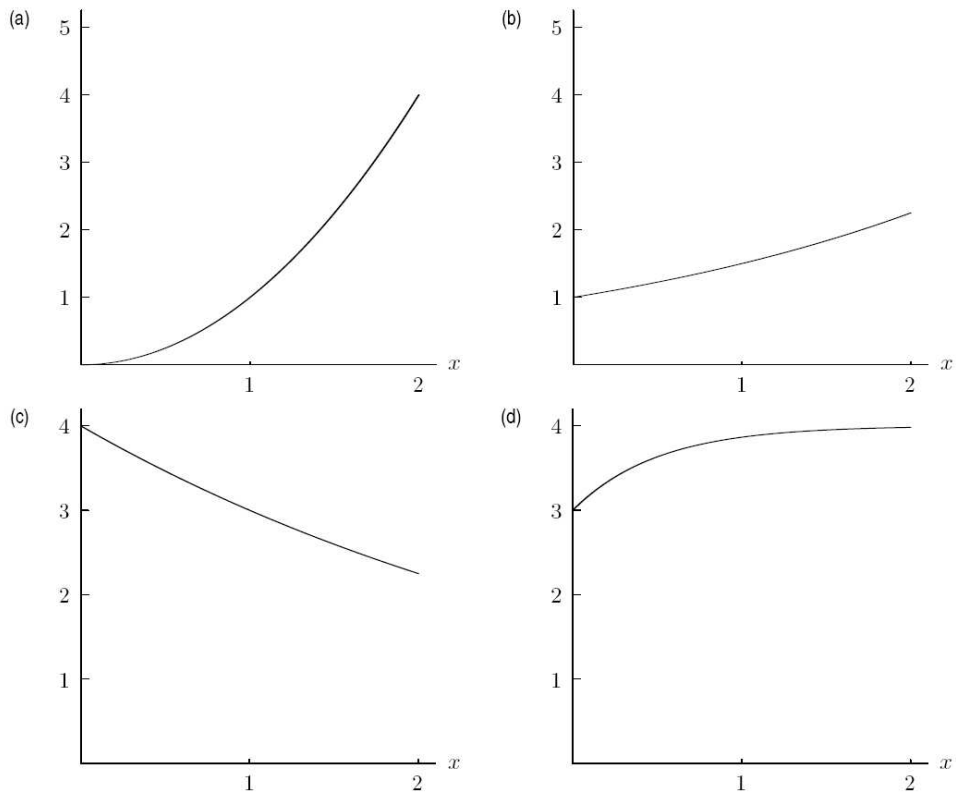
- (a) b^h
- (b) h
- (c) $b^{x+h} - b^x$
- (d) a

6. Estimate the doubling time for the exponential growth shown in the figure below.



- (a) 4
- (b) 5
- (c) 7
- (d) 10

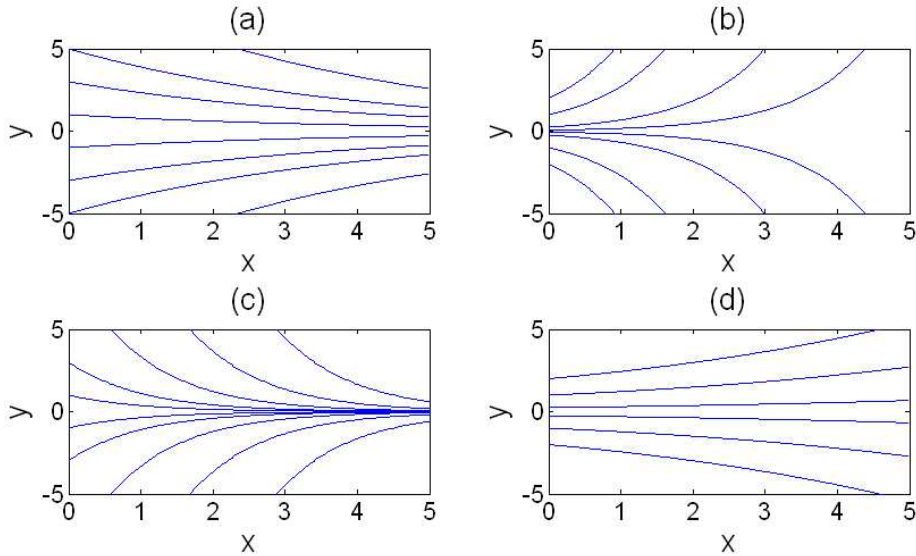
7. Which of the following graphics could be that of $y = ab^x$ if $b > 1$?



8. “During 1988, Nicaragua’s inflation rate averaged 1.3% a day.” Which formula represents the above statement? Assume t is measured in days.

- (a) $I = I_0 e^{0.013t}$
- (b) $I = I_0 (1.013)^t$
- (c) $I = I_0 (1.013)t$
- (d) $I = I_0 (1.3)^t$

9. Graph (a) shows several functions of the form $y(x) = Q_0 e^{k_a x}$ with several different values of Q_0 but the same value of k_a . Graph (b) shows several functions of the form $y(x) = Q_0 e^{k_b x}$ with several different values of Q_0 but the same value of k_b , and similarly for graphs (c) and (d). Rank the constants k_a, k_b, k_c and k_d from smallest to largest.



- (a) $k_b < k_d < k_a < k_c$
 (b) $k_d < k_c < k_b < k_a$
 (c) $k_c < k_a < k_d < k_b$
 (d) $k_a < k_b < k_c < k_d$

10. Which of the following is an exponential function which has a y intercept of 4 and goes through the point (2,9)?

- (a) $f(x) = 4 \cdot 1.25^x$
 (b) $f(x) = 4 \cdot 1.5^x$
 (c) $f(x) = 4 \cdot 2.25^x$
 (d) $f(x) = 2 \cdot 1.25^x$
 (e) $f(x) = 2 \cdot (\sqrt{9/2})^x$
 (f) $f(x) = 2 \cdot 1.5^x$

11. Which of the following is an exponential function which goes through the points (2,3) and (3,1)?

- (a) $f(x) = \frac{3}{4} \cdot 2^x$
 (b) $f(x) = 12 \cdot \frac{1}{2}^x$
 (c) $f(x) = 12 \cdot \frac{1}{4}^x$
 (d) $f(x) = 27 \cdot \frac{1}{3}^x$