Classroom Voting Questions: Precalculus

1.1 Functions and Change

1. In the given equation, is y a function of x?

$$y = x + 2$$

   (a) Yes, and I am very confident
   (b) Yes, but I am not very confident
   (c) No, but I am not very confident
   (d) No, and I am very confident

2. In the given equation, is y a function of x?

$$x + y = 5$$

   (a) Yes, and I am very confident
   (b) Yes, but I am not very confident
   (c) No, but I am not very confident
   (d) No, and I am very confident

3. In the given equation, is y a function of x?

$$x^3 + y = 5$$

   (a) Yes, and I am very confident
   (b) Yes, but I am not very confident
   (c) No, but I am not very confident
   (d) No, and I am very confident

4. In the given equation, is y a function of x?

$$x^2 + y^2 = 5$$

   (a) Yes, and I am very confident

(b) Yes, but I am not very confident

(c) No, but I am not very confident

(d) No, and I am very confident

5. Does the table represent a function, $y = f(x)$?

x	1	2	3	4
$f(x)$	2	3	2	4

(a) Yes, and I am very confident

(b) Yes, but I am not very confident

(c) No, but I am not very confident

(d) No, and I am very confident

6. Does the table represent a function, $y = f(x)$?

x	1	2	2	4
$f(x)$	2	3	1	3

(a) Yes, and I am very confident

(b) Yes, but I am not very confident

(c) No, but I am not very confident

(d) No, and I am very confident

7. Does this sentence describe a function? Wanda is two years older than I am.

(a) Yes, and I am very confident

(b) Yes, but I am not very confident

(c) No, but I am not very confident

(d) No, and I am very confident

8. Could this table represent a linear function?

x	1	2	3	4
$f(x)$	1	2	4	8

(a) Yes, and I am very confident

(b) Yes, but I am not very confident

(c) No, but I am not very confident

(d) No, and I am very confident

9. Could this table represent a linear function?

x	1	2	3	4
$f(x)$	-12	-9	-6	-3

(a) Yes, and I am very confident
(b) Yes, but I am not very confident
(c) No, but I am not very confident
(d) No, and I am very confident

10. Could this table represent a linear function?

x	1	2	4	8
$f(x)$	12	14	16	18

(a) Yes, and I am very confident
(b) Yes, but I am not very confident
(c) No, but I am not very confident
(d) No, and I am very confident

11. Could this table represent a linear function?

x	1	2	4	8
$f(x)$	10	9	7	3

(a) Yes, and I am very confident
(b) Yes, but I am not very confident
(c) No, but I am not very confident
(d) No, and I am very confident

12. True or False? All linear functions are examples of direct proportionality.

(a) True, and I am very confident
(b) True, but I am not very confident
(c) False, but I am not very confident
(d) False, and I am very confident

13. Which of the following functions has its domain identical with its range?

(a) $f(x) = x^2$
(b) $g(x) = \sqrt{x}$
(c) $h(x) = x^4$
(d) $i(x) = |x|$

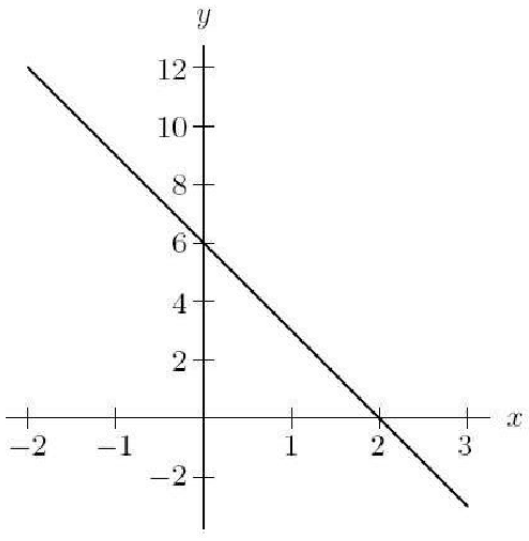
14. The slope of the line connecting the points (1,4) and (3,8) is

(a) $-\frac{1}{2}$
(b) -2
(c) $\frac{1}{2}$
(d) 2

15. Which one of these lines has a different slope than the others?

(a) $y = 3x + 2$
(b) $3y = 9x + 4$
(c) $3y = 3x + 6$
(d) $2y = 6x + 4$

16. The graph below represents which function?



(a) $y = 6x + 6$

(b) $y = -3x + 6$

(c) $y = -3x + 2$

(d) $y = -x + 6$

(e) $y = 6x - 2$

(f) $y = x - 2$

17. Which of the following functions is not increasing?

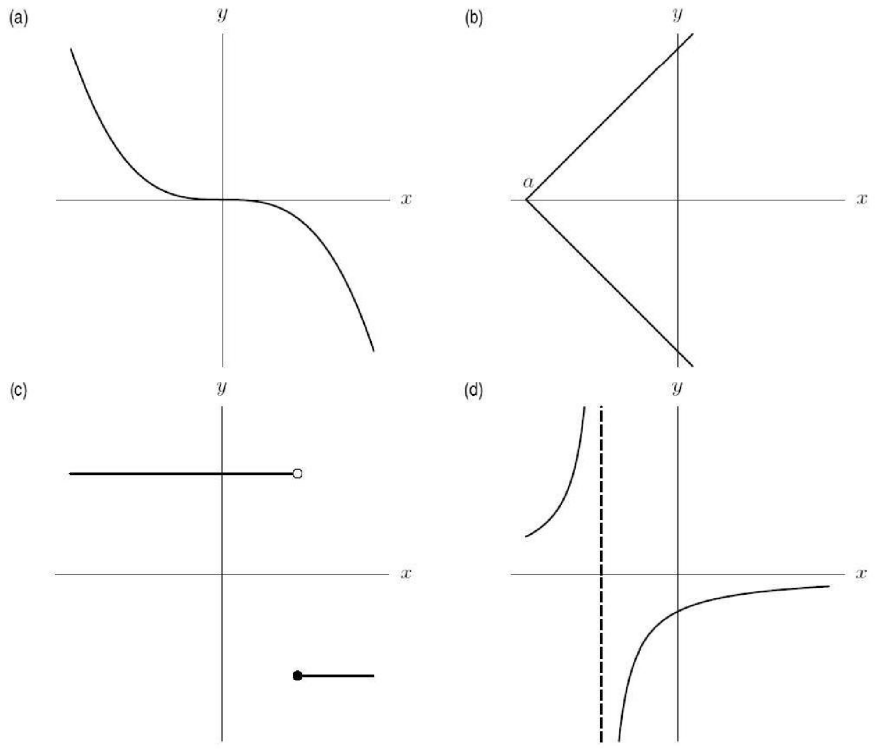
    (a) The elevation of a river as a function of distance from its mouth

    (b) The length of a single strand of hair as a function of time

    (c) The height of a person from age 0 to age 80

    (d) The height of a redwood tree

18. Which of these graphs does not represent y as a function of x?



1.2 Exponential Functions

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

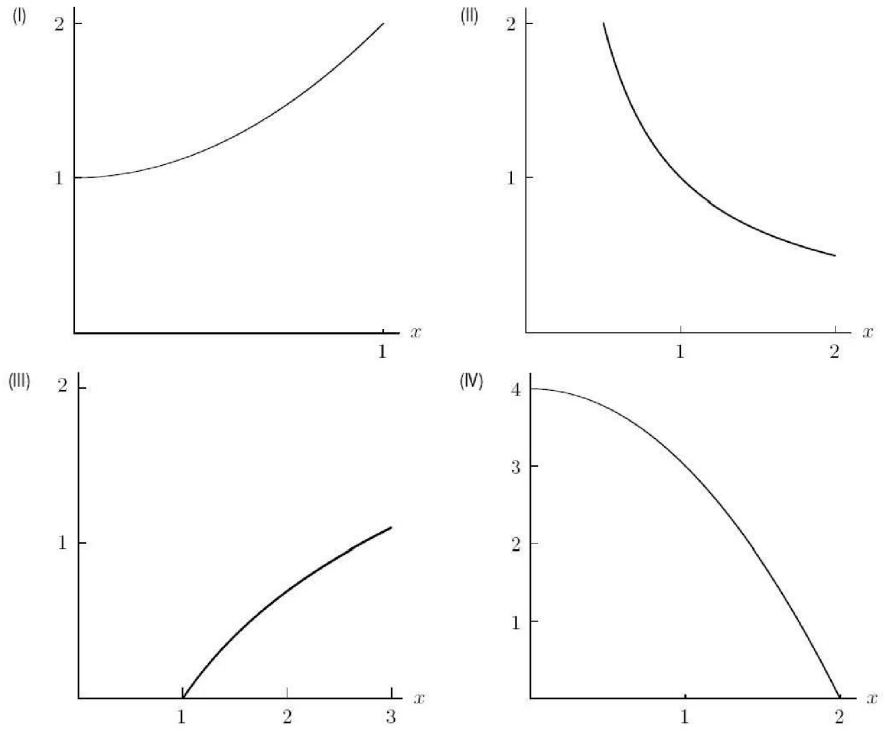
(a) True, and I am very confident

(b) True, but I am not very confident

(c) False, but I am not very confident

(d) False, and I am very confident

20. 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

21. Every exponential function has a vertical intercept.

(a) True, and I am very confident

(b) True, but I am not very confident

(c) False, but I am not very confident

(d) False, and I am very confident

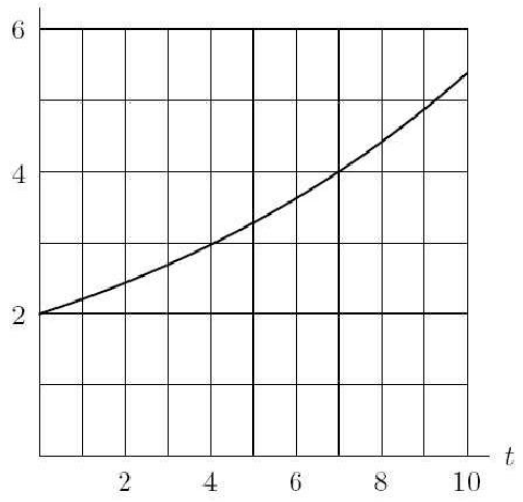
22. Every exponential function has a horizontal intercept.

(a) True, and I am very confident
(b) True, but I am not very confident
(c) False, but I am not very confident
(d) False, and I am very confident

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

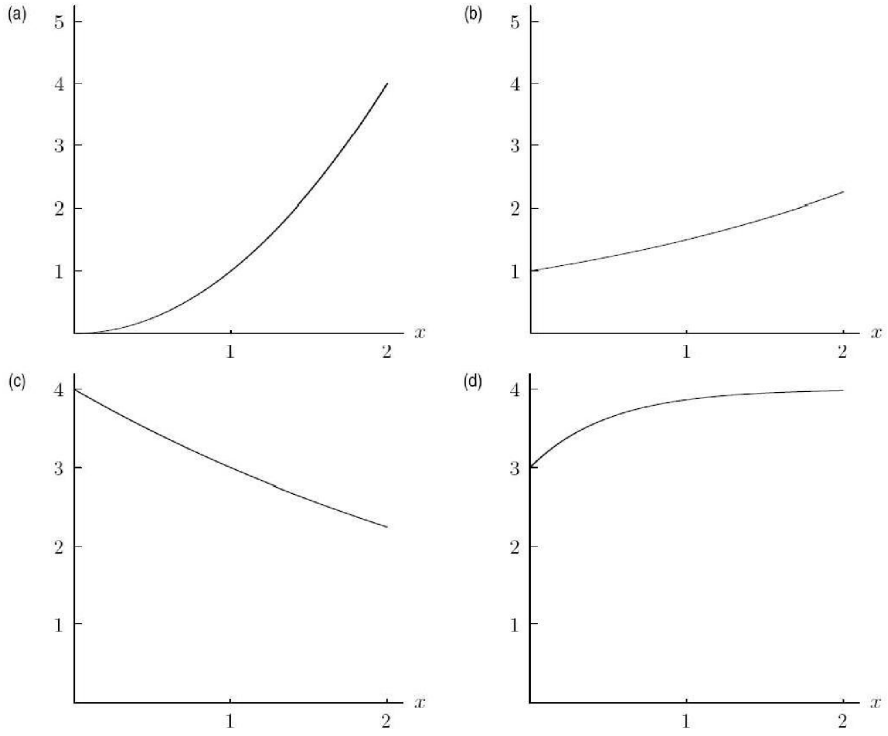
(a) b^h
(b) h
(c) $b^{x+h} - b^x$
(d) a

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



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

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



26. "During 1988, Nicaragua's inflation rate averaged 1.3% a day." Which formula represents the above statement? Assume t is measured in days.

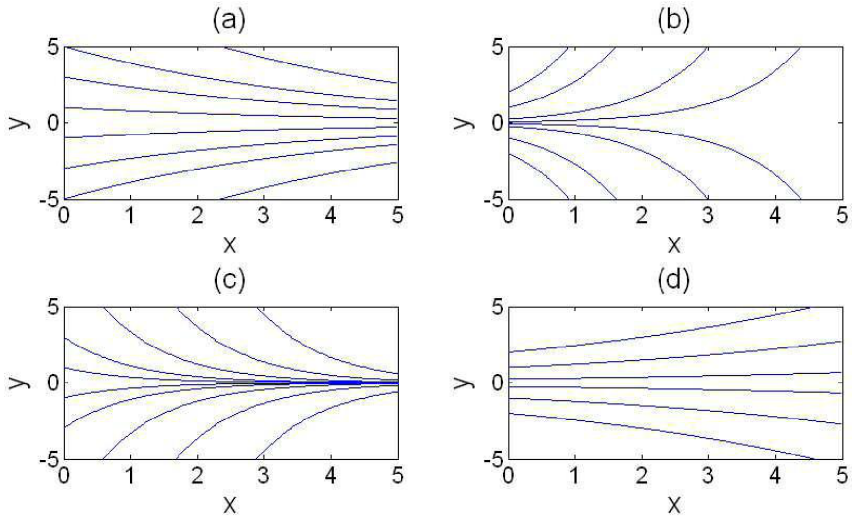
(a) $I = I_0 e^{0.013t}$

(b) $I = I_0(1.013)^t$

(c) $I = I_0(1.013)t$

(d) $I = I_0(1.3)^t$

27. 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) $k_a < k_b < k_c < k_d$

28. 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) $f(x) = 2 \cdot 1.5^x$

29. 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) $f(x) = 27 \cdot \frac{1}{3}^x$

1.3 New Functions From Old

30. The functions f and g have values given in the table below. What is the value of $f(g(0))$?

x	-2	-1	0	1	2
$f(x)$	1	0	-2	2	-1
$g(x)$	-1	1	2	0	-2

(a) -2

(b) -1

(c) 0

(d) 1

(e) 2

31. The functions f and g have values given in the table below. If $f(g(x)) = 1$, then what is x?

x	-2	-1	0	1	2
$f(x)$	1	0	-2	2	-1
$g(x)$	-1	1	2	0	-2

(a) -2

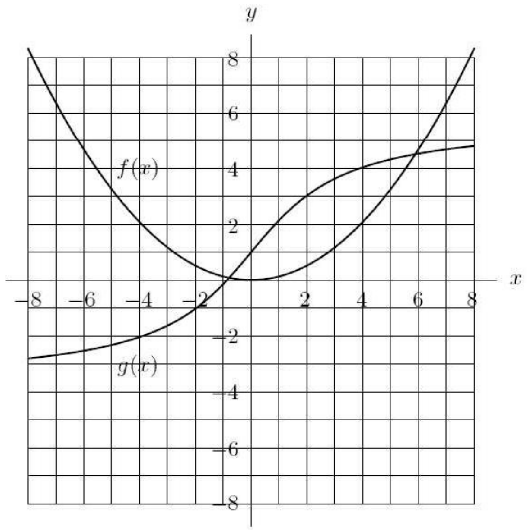
(b) -1

(c) 0

(d) 1

(e) 2

32. The graphs of f and g are shown in the figure below. Estimate the value of $g(f(3))$.



(a) -1

(b) 0

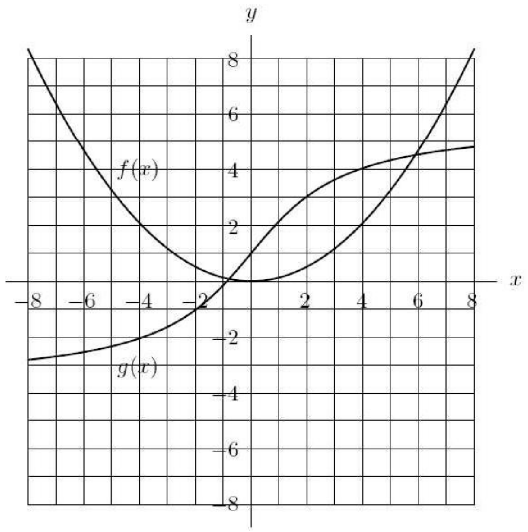
(c) 1

(d) 2

(e) 3

(f) 5

33. The graphs of f and g are shown in the figure below. Estimate the value of $f(g(2))$.



(a) -1

(b) 0

(c) 1

(d) 2

(e) 3

(f) 5

34. If $P = f(t) = 3 + 4t$, find $f^{-1}(P)$.

(a) $f^{-1}(P) = 3 + 4P$

(b) $f^{-1}(P) = \frac{P-3}{4}$

(c) $f^{-1}(P) = \frac{P-4}{3}$

(d) $f^{-1}(P) = 4(P + 3)$

(e) $f^{-1}(P) = \frac{P+3}{4}$

35. A function is given in Figure 1.10 below. Which one of the other graphs could be a graph of $f(x + h)$?

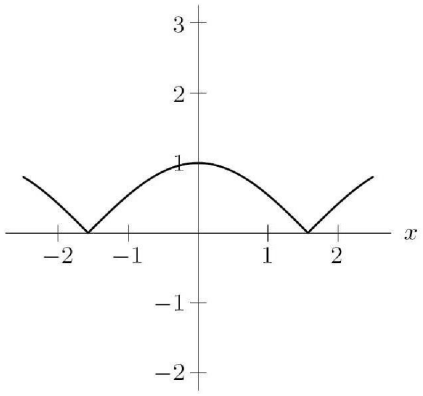
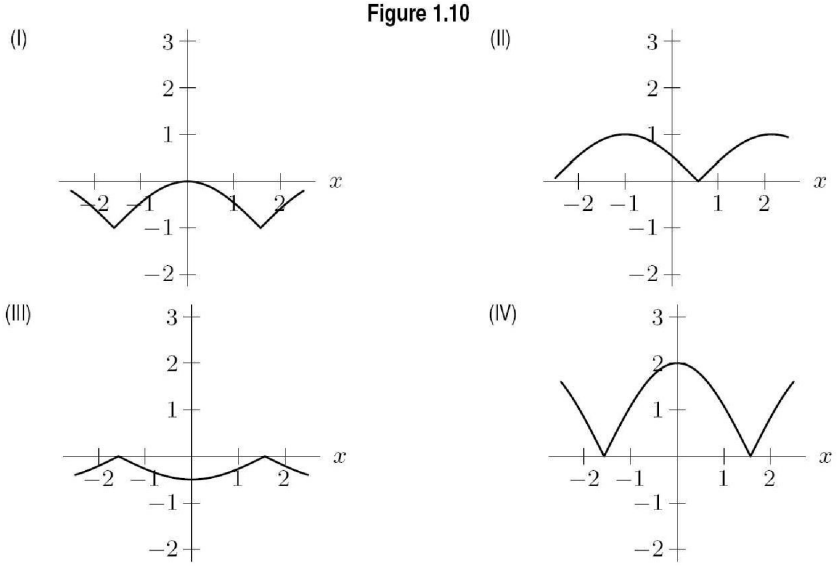


Figure 1.10



(a) I

(b) II

(c) III

(d) IV

36. The function $f(x)$ goes through the point A with coordinates (2,3). $g(x) = 2f(\frac{1}{3}x - 2) + 4$. What are the coordinates of point A in the function $g(x)$?

(a) $(4, 10)$

(b) $(4, -\frac{5}{2})$

(c) $(12, 10)$

(d) $(-\frac{4}{3}, 10)$

(e) $(-\frac{4}{3}, -\frac{5}{2})$

37. Take the function $f(x)$ and "Shift the function right h units. Reflect the result across the y-axis, then reflect the result across the x-axis. Finally shift the result up k units." The end result is:

(a) $f(x+h)+k$
(b) $f(x-h)+k$
(c) $-f(-x-h)+k$
(d) $-f(-x+h)+k$

38. Given $f(x)=x+1$ and $g(x)=3x^2-2x$, what is the composition $g(f(x))$.

(a) $3x^2-2x+1$
(b) $(3x^2-2x)(x+1)$
(c) $3x^2+4x+1$
(d) $3(x+1)^2-2x$

39. Write $h(x)=e^{3x/2}$ as a composition of functions: $f(g(x))$. $f(x)=$ _____, $g(x)=$ _____.

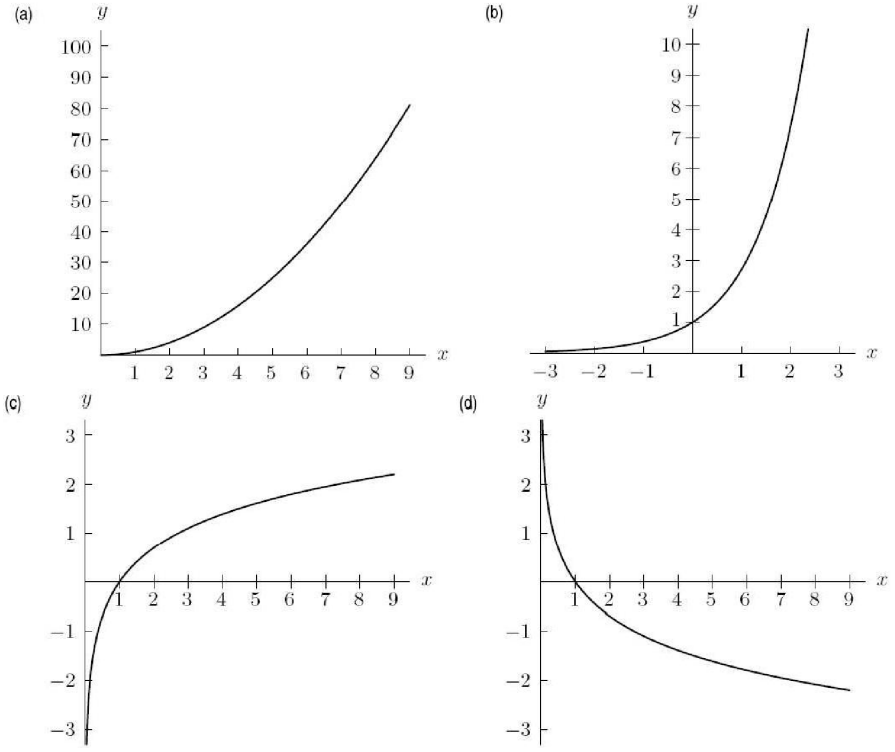
(a) $e^x, 3x/2$
(b) $3x/2, e^x$
(c) $x, e^{3x/2}$
(d) $x/2, 3e^x$

40. Which of the following functions IS invertible?

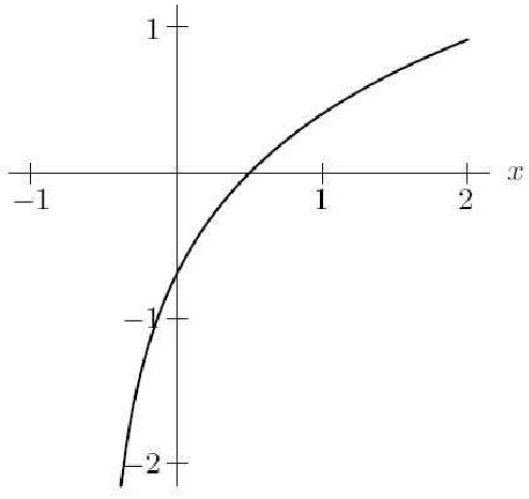
(a) $f(x)=-x^4+7$
(b) $g(x)=e^{3x/2}$
(c) $h(x)=\cos(x)$
(d) $k(x)=|x|$

1.4 Logarithmic Functions

41. Which is a graph of $y = \ln x$?



42. The graph below could be that of



(a) $y = \ln x + \frac{1}{2}$

(b) $y = \ln x - \frac{1}{2}$

(c) $y = \ln\left(x + \frac{1}{2}\right)$

(d) $y = \ln\left(x - \frac{1}{2}\right)$

43. Which of the following functions have vertical asymptotes of $x = 3$?

(a) $y = \ln(x/3)$

(b) $y = \ln(x - 3)$

(c) $y = \ln(x + 3)$

(d) $y = 3 \ln x$

44. $\log\left(\frac{M-N}{M+N}\right) =$

(a) $2 \log M$

(b) $2 \log N$

(c) $-2 \log N$

(d) $\log(M - N) - \log(M + N)$

45. If $\log_{10}(x - a) = n$, then $x =$

(a) 10^{a+n}

(b) $a + 10^n$

(c) $n + 10^a$

(d) $n + a^{10}$

46. What is the inverse of the following function:

$$P = f(t) = 16 \ln(14t)$$

(a) $f^{-1}(P) = \frac{1}{14} e^{16P}$

(b) $f^{-1}(P) = \frac{1}{14} e^{P/16}$

(c) $f^{-1}(P) = \frac{1}{14} \ln(P/16)$

(d) $f^{-1}(P) = \frac{\ln 16}{14} P$

47. Solve for x if $8y = 3e^x$.

(a) $x = \ln 8 + \ln 3 + \ln y$

(b) $x = \ln 3 - \ln 8 + \ln y$

(c) $x = \ln 8 + \ln y - \ln 3$

(d) $x = \ln 3 - \ln 8 - \ln y$

48. Solve for x if $y = e + 2^x$

(a) $x = \frac{\ln y - 1}{\ln 2}$

(b) $x = \frac{\ln(y-1)}{\ln 2}$

(c) $x = \frac{\ln y}{\ln 2} - 1$

(d) $x = \frac{\ln(y-e)}{\ln 2}$

49. $\log\left(\frac{a^4 b^7}{c^5}\right) =$

(a) $\log(a^4) + \log(b^7) + \log(c^5)$

(b) $4\log a + 7\log b - 5\log c$

(c) $28\log ab - 5\log c$

(d) $\frac{28}{5}(\log a + \log b - \log c)$

(e) None of the above

50. 25 rabbits are introduced to an island, where they quickly reproduce and the rabbit population grows according to an exponential model $P(t) = P_0 e^{kt}$ so that the population doubles every four months. If t is in months, what is the value of the continuous growth rate k?

(a) $k = \frac{1}{2}\ln 4$

(b) $k = \frac{1}{4}\ln 2$

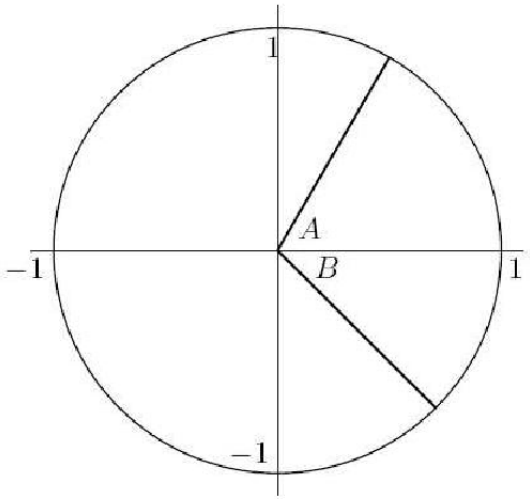
(c) $k = \frac{1}{50}\ln\frac{4}{25}$

(d) $k = \frac{4}{25}\ln\frac{1}{50}$

(e) None of the above

1.5 Trigonometric Functions

51. Which of the following is the approximate value for the sine and cosine of angles A and B in the figure below.



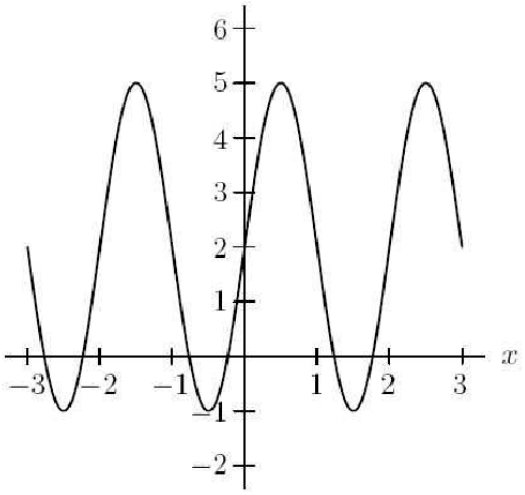
(a) $\sin A \approx 0.5$, $\cos A \approx 0.85$, $\sin B \approx -0.7$, $\cos B \approx 0.7$

(b) $\sin A \approx 0.85$, $\cos A \approx 0.5$, $\sin B \approx -0.7$. $\cos B \approx 0.7$

(c) $\sin A \approx 0.5$, $\cos A \approx 0.85$, $\sin B \approx 0.7$, $\cos B \approx 0.7$

(d) $\sin A \approx 0.85$, $\cos A \approx 0.5$, $\sin B \approx 0.7$, $\cos B \approx 0.7$

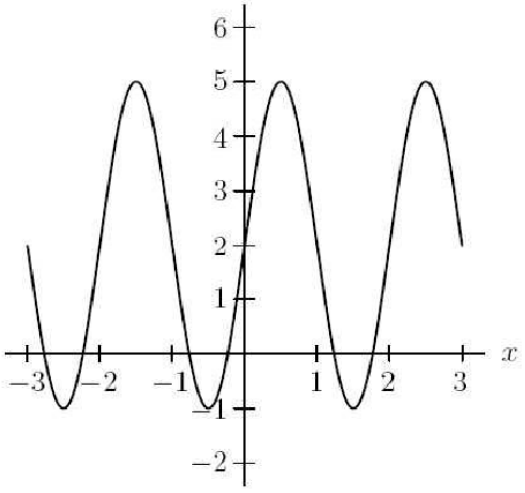
52. The amplitude and period of the function below are



(a) Amplitude = 2, Period = 2

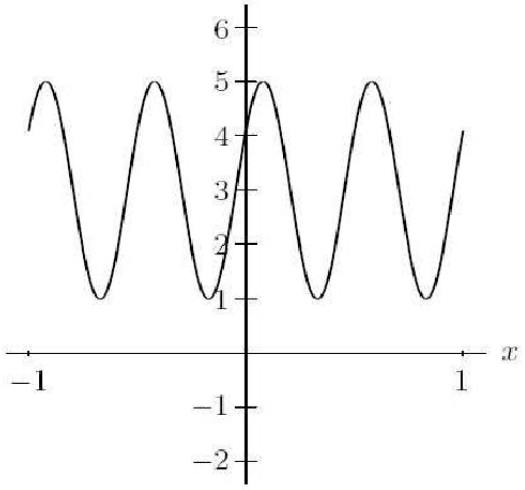
(b) Amplitude = 2, Period = 3
(c) Amplitude = 2, Period = 1/2
(d) Amplitude = 3, Period = 2
(e) Amplitude = 3, Period = 1/2

53. What is the equation of the function shown in the graph?



(a) $y = 3\sin(2x) + 2$
(b) $y = 3\cos(2x) + 2$
(c) $y = 3\sin(\pi x) + 2$
(d) $y = 3\cos(\pi x) + 2$
(e) $y = 3\sin(\frac{1}{\pi}x) + 2$
(f) $y = 3\cos(\frac{1}{\pi}x) + 2)$

54. The amplitude and period of the function below are



(a) Amplitude = 2, Period = 2

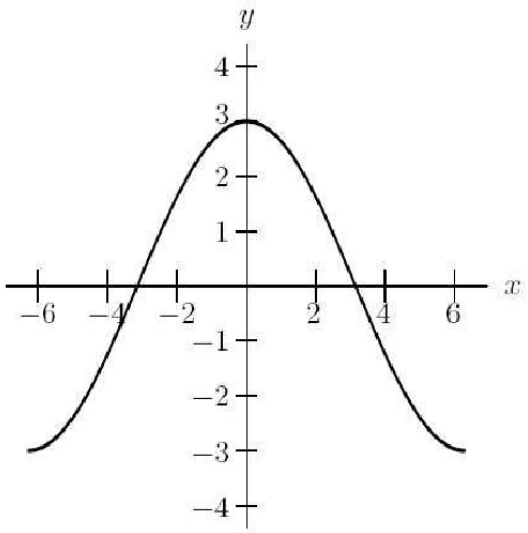
(b) Amplitude = 2, Period = 3

(c) Amplitude = 2, Period = 1/2

(d) Amplitude = 3, Period = 2

(e) Amplitude = 3, Period = 1/2

55. Which of the following could describe the graph below?



(a) $y = 3\cos(2x)$

(b) $y = 3\cos(x/2)$

(c) $y = 3\sin(2x)$

(d) $y = 3\sin(x/2)$

56. The function $f(x) = 3\sin(2x+4)$ is created when you take the function $g(x) = 3\sin(2x)$ and you...

(a) shift it left by 4 units.

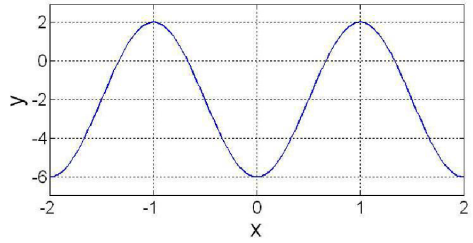
(b) shift it right by 4 units.

(c) shift it left by 2 units.

(d) shift it right by 2 units.

(e) shift it left by 8 units.

57. Which of the following could describe the graph below?



(a) $y = 4\sin\left(\pi x - \frac{\pi}{2}\right) - 2$

(b) $y = -4\sin\left(\pi x + \frac{\pi}{2}\right) - 2$

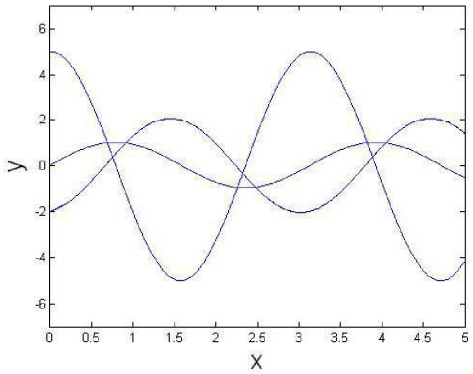
(c) $y = -4\cos(\pi x) - 2$

(d) $y = 4\cos(\pi(x+1)) - 2$

(e) All of the above

(f) More than one, but not all of the above

58. Three different functions of the form $y = A\sin(Bx+C)$ are plotted below. Could these all have the same value of B?

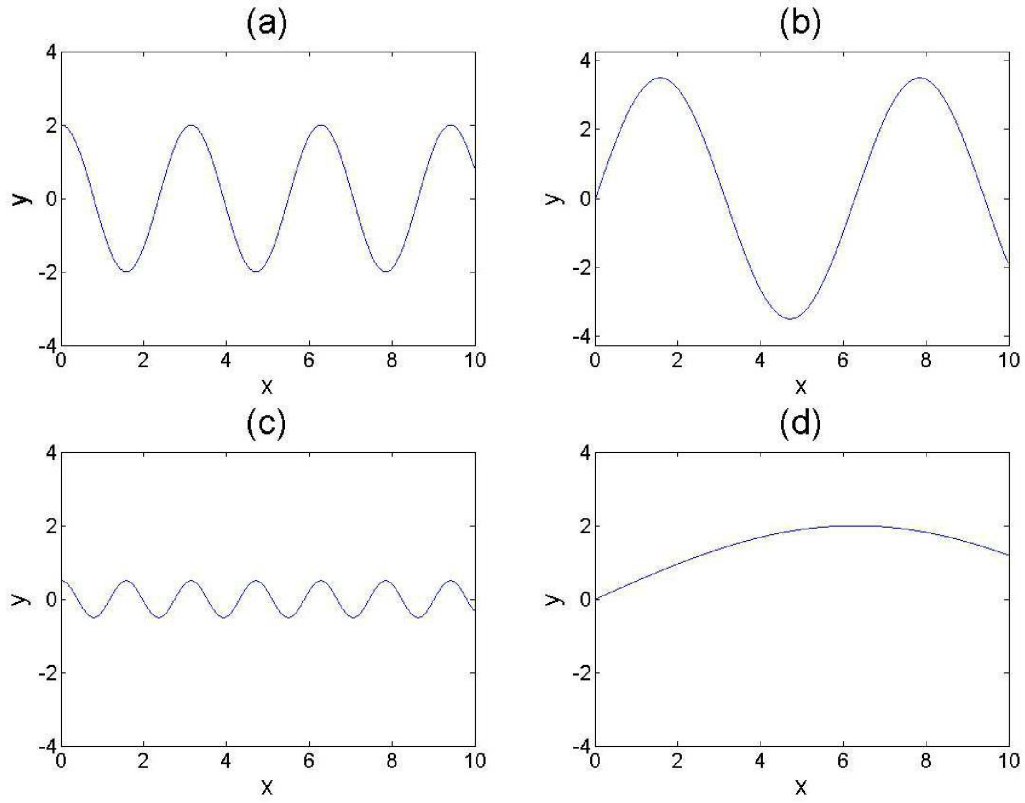


(a) Yes

(b) No

(c) Not enough information is given.

59. The functions plotted below are all of the form $y = A\sin(Bx + C)$. Which function has the largest value of B?



1.6 Powers, Polynomials, and Rational Functions

60. As $x \to \infty$, which function dominates? That is, which function is larger in the long run?

    (a) $0.1x^2$

    (b) $10^{10}x$

61. As $x \to \infty$, which function dominates?

    (a) $0.25\sqrt{x}$

    (b) $25,000x^{-3}$

62. As $x \to \infty$, which function dominates?

    (a) $3 - 0.9^x$

(b) $\log x$

63. As $x \to \infty$, which function dominates?

(a) x^3

(b) 2^x

64. As $x \to \infty$, which function dominates?

(a) $10(2^x)$

(b) $72,000x^{12}$

65. Which of these functions dominates as $x \to \infty$?

(a) $f(x) = -5x$

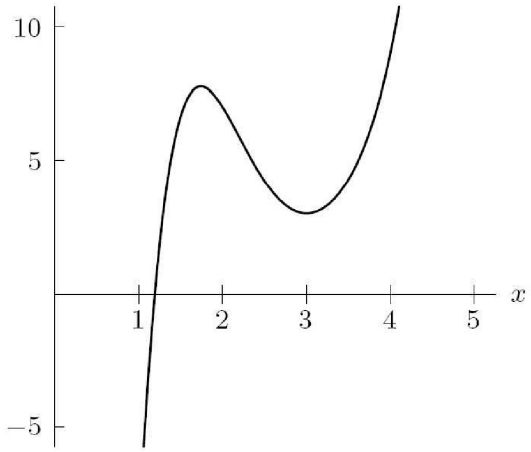
(b) $g(x) = 10^x$

(c) $h(x) = 0.9^x$

(d) $k(x) = x^5$

(e) $l(x) = \pi^x$

66. What is the degree of the graph of the polynomial in the figure below?



(a) 3

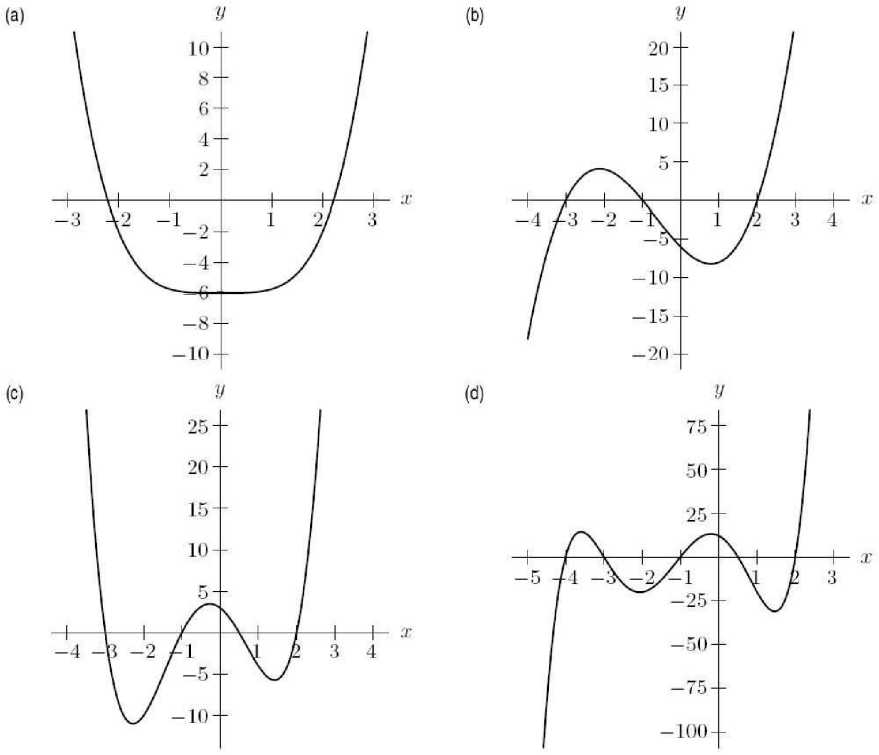
(b) 5

(c) Either (a) or (b)

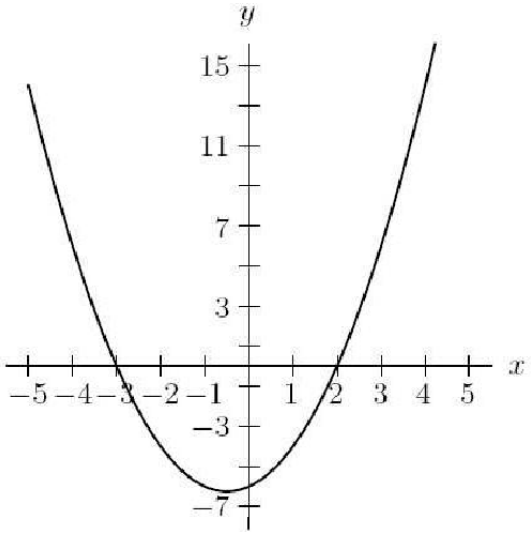
(d) Neither (a) nor (b)

(e) Any polynomial of degree greater than 2

67. The equation $y = x^3 + 2x^2 - 5x - 6$ is represented by which graph?



68. The graph below is a representation of which function?



(a) $y = 3x + 2$

(b) $y = (x - 2)(x + 3)$

(c) $y = (x - 6)(x - 2)$

(d) $y = (x - 3)(x + 2)$

(e) none of these

69. Let $f(x) = \frac{x^2-1}{x+1}$ and $g(x) = x - 1$, then $f(x) = g(x)$.

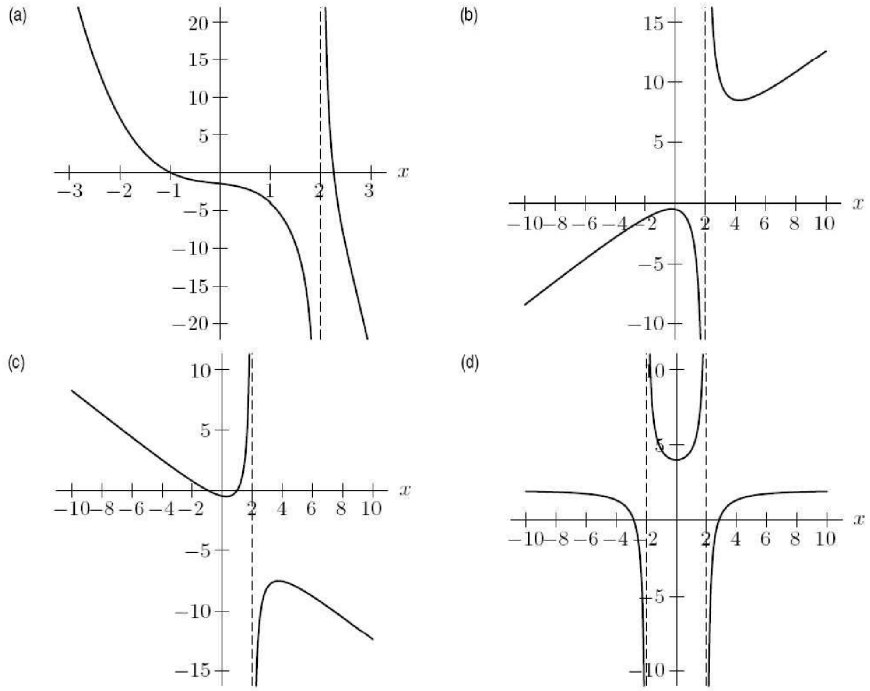
(a) True, and I am very confident

(b) True, but I am not very confident

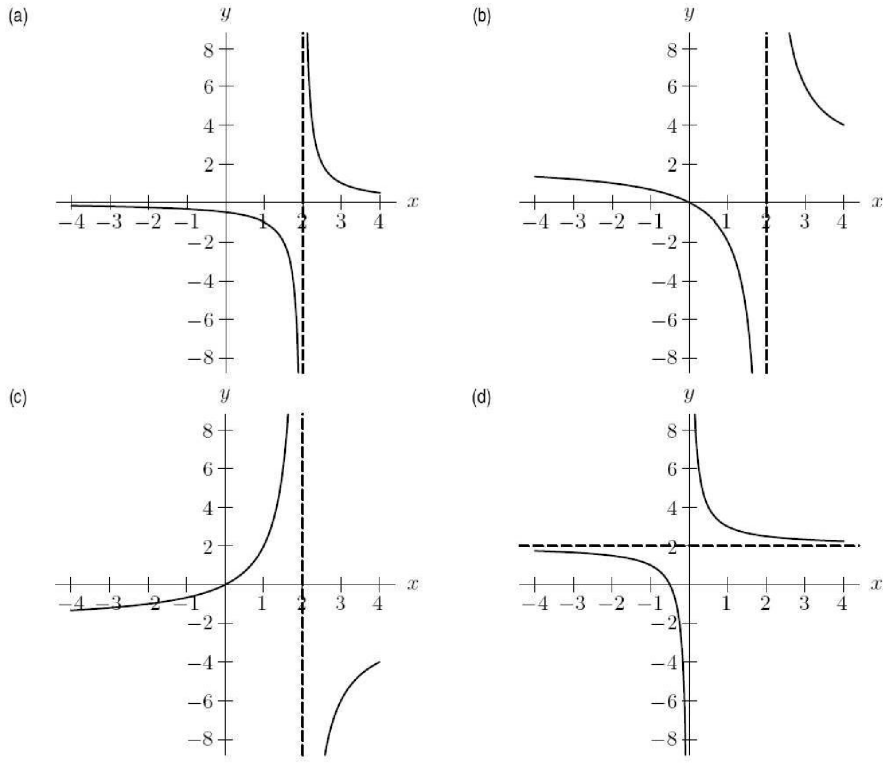
(c) False, but I am not very confident

(d) False, and I am very confident

70. Which if the following is a graph for $y = \frac{1-x^2}{x-2}$. (No calculators allowed.)



71. Which of the graphs represents $y = \frac{2x}{x-2}$?



1.7 Introduction to Continuity

72. A drippy faucet adds one milliliter to the volume of water in a tub at precisely one-second intervals. Let f be the function that represents the volume of water in the tub at time t. Which of the following statements is correct?

    (a) f is a continuous function at every time t

    (b) f is continuous for all t other than the precise instants when the water drips into the tub.

    (c) f is not continuous at any time t.

    (d) There is not enough information to know where f is continuous.

73. A drippy faucet adds one milliliter to the volume of water in a tub at precisely one second intervals. Let g be the function that represents the volume of water in the tub as a function of the depth of the water, x, in the tub. Which of the following statements is correct?

    (a) g is a continuous function at every depth x.

(b) there are some values of x at which g is not continuous.

(c) g is not continuous at any depth, x.

(d) not enough information is given to know where g is continuous.

74. You know the following statement is true:

If $f(x)$ is a polynomial, then $f(x)$ is continuous.

Which of the following is also true?

(a) If $f(x)$ is not continuous, then it is not a polynomial.

(b) If $f(x)$ is continuous, then it is a polynomial.

(c) If $f(x)$ is not a polynomial, then it is not continuous.

75. **True or False:** You were once exactly 3 feet tall.

(a) True, and I am very confident

(b) True, but I am not very confident

(c) False, but I am not very confident

(d) False, and I am very confident

76. **True or False:** At some time since you were born your weight in pounds equaled your height in inches.

(a) True, and I am very confident

(b) True, but I am not very confident

(c) False, but I am not very confident

(d) False, and I am very confident

77. **True or False:** Along the Equator, there are two diametrically opposite sites that have exactly the same temperature at the same time.

(a) True, and I am very confident

(b) True, but I am not very confident

(c) False, but I am not very confident

(d) False, and I am very confident

78. Suppose that during half-time at a basketball game the score of the home team was 36 points. **True or False:** There had to be at least one moment in the first half when the home team had exactly 25 points.

    (a) True, and I am very confident

    (b) True, but I am not very confident

    (c) False, but I am not very confident

    (d) False, and I am very confident

79. At what point on the interval $[-7, 2]$ does the function $f(x) = \frac{3e^x}{4e^x - 4}$ have a discontinuity?

    (a) $x = 0$

    (b) $x = 1$

    (c) $x = 3$

    (d) $x = 4$

    (e) There is no discontinuity on this interval.

80. For what value of the constant c is the function $f(x)$ continuous, if

$$f(x) = \begin{cases} cx + 9 & \text{if } x \in (-\infty, 5] \\ cx^2 - 9 & \text{if } x \in (5, \infty) \end{cases}$$

    (a) $c = -\frac{9}{5}$

    (b) $c = \frac{9}{10}$

    (c) $c = \frac{9}{25}$

    (d) This is not possible.

1.8 Limits

81. Consider the function:

$$f(x) = \begin{cases} 6 & \text{if } x > 9 \\ 2 & \text{if } x = 9 \\ -x + 14 & \text{if } -7 \leq x < 9 \\ 21 & \text{if } x < -7 \end{cases}$$

(a) $\lim_{x\to 9^-} f(x) = 2$

(b) $\lim_{x\to 9^-} f(x) = 5$

(c) $\lim_{x\to 9^-} f(x) = 6$

(d) $\lim_{x\to 9^-} f(x) = 14$

(e) $\lim_{x\to 9^-} f(x) = 21$

82. **True or False:** As x increases to 100, $f(x) = 1/x$ gets closer and closer to 0, so the limit as x goes to 100 of $f(x)$ is 0. Be prepared to justify your answer.

(a) True, and I am very confident

(b) True, but I am not very confident

(c) False, but I am not very confident

(d) False, and I am very confident

83. **True or False:** $\lim_{x\to a} f(x) = L$ means that if x_1 is closer to a than x_2 is, then $f(x_1)$ will be closer to L than $f(x_2)$ is. Be prepared to justify your answer with an argument or counterexample.

(a) True, and I am very confident

(b) True, but I am not very confident

(c) False, but I am not very confident

(d) False, and I am very confident

84. The reason that $\lim_{x\to 0} \sin\left(\frac{1}{x}\right)$ does not exist is:

(a) because no matter how close x gets to 0, there are x's near 0 for which $\sin\left(\frac{1}{x}\right) = 1$, and some for which $\sin\left(\frac{1}{x}\right) = -1$.

(b) because the function values oscillate around 0.

(c) because $\frac{1}{0}$ is undefined.

(d) all of the above

85. $\lim_{x\to 0} x^2 \sin\left(\frac{1}{x}\right)$

(a) does not exist because no matter how close x gets to 0, there are x's near 0 for which $\sin\left(\frac{1}{x}\right) = 1$, and some for which $\sin\left(\frac{1}{x}\right) = -1$.

(b) does not exist because the function values oscillate around 0.

(c) does not exist because $\frac{1}{0}$ is undefined.

(d) equals 0

(e) equals 1

86. You're trying to guess $\lim_{x\to 0} f(x)$. You plug in $x = 0.1, 0.01, 0.001, \cdots$ and get $f(x) = 0$ for all of these values. In fact you're told that for all $n = 1, 2, \cdots$, $f\left(\frac{1}{10^n}\right) = 0$. **True or False:** Since the sequence $f(0.1), f(0.01), f(0.001), \cdots$ goes to 0, we know that $\lim_{x\to 0} = 0$.

(a) True, and I am very confident

(b) True, but I am not very confident

(c) False, but I am not very confident

(d) False, and I am very confident

87. If $\lim_{x\to a} f(x) = 0$ and $\lim_{x\to a} g(x) = 0$, then $\lim_{x\to a} \frac{f(x)}{g(x)}$

(a) does not exist.

(b) must exist.

(c) can't be determined. Not enough information is given.

88. **True or False:** Consider a function $f(x)$ with the property that $\lim_{x\to a} f(x) = 0$. Now consider another function $g(x)$ also defined near a. Then $\lim_{x\to a} [f(x)g(x)] = 0$.

(a) True, and I am very confident

(b) True, but I am not very confident

(c) False, but I am not very confident

(d) False, and I am very confident

89. If a function f is not defined at $x = a$,

(a) $\lim_{x\to a}$ cannot exist.

(b) $\lim_{x\to a}$ could be 0.

(c) $\lim_{x\to a}$ must approach ∞.

(d) none of the above

90. Possible criteria for continuity at a point: *If the limit of the function exists at a point, the function is continuous at that point.* Which of the following examples fits the above criteria but is not continuous at $x = 0$?

(a) $f(x) = x$

(b) $f(x) = x^2/x$

(c) $f(x) = |x|/x$

(d) None of these show a problem with this criteria.

91. Let $f(x) = 5x^4 + 18x^3 - 2x + 3$. As x gets really big, what becomes the most important (dominant) term in this function?

(a) $5x^4$

(b) $18x^3$

(c) $-2x$

(d) 3

92. What is

$$\lim_{x \to \infty} \frac{6x^2 - 5x}{2x^2 + 3}?$$

(a) 0

(b) 2

(c) 3

(d) 6

(e) infinity

93. What is

$$\lim_{x \to \infty} \frac{3x^2 + 5x^3 - 2x + 4}{4x^3 - 5x + 6}?$$

(a) 0

(b) 2/3

(c) 3/4

(d) 5/4

(e) infinity

94. What is

$$\lim_{x \to \infty} \frac{100x^5 - 15x}{x^6 + 3}?$$

(a) 0

(b) 5/6

(c) 85

(d) 100

(e) infinity

95. What is

$$\lim_{x \to \infty} \frac{x^2 + 2x + 3}{25x - 7}?$$

(a) 0

(b) 1/25

(c) 3/7

(d) 2

(e) infinity