

Pre-Calculus A
Midterm Review Packet Answer Key

1. $j(0) = 3 ; j(1) = 1$
2. B
3. D
4. A
5. A
6. $x^2 + 3x - 1$
7. $-x^2 + 3x + 11$
8. $3x^3 + 5x^2 - 18x - 30$
9. $\frac{3x+5}{x^2-6}$
10. C
11. 1319
12. $6x^2 + 2$
13. $18x^2 + 24x + 7$
14. A
15. B
16. $(-\infty, -3) \cup (-3, 3) \cup (3, \infty)$
17. $(-\infty, 4) \cup (4, \infty)$
18. $\left[-\frac{2}{3}, \infty\right)$
19. $(-\infty, -3) \cup (-3, 1) \cup (1, \infty)$
20. D
21. Not one-to-one
22. One-to-one
23. A
24. B
25. $f^{-1}(x) = \frac{x-2}{4}$
26. $f^{-1}(x) = \sqrt[3]{x-1} + 4$
27. Even
28. Odd
29. Neither
30. Even
31. a. Make sure you get 0 as a remainder! b. $(x+4)(2x-1)(x+1)$ c. $x = -4, -1, \frac{1}{2}$
32. $1+i$
33. $x = -3+i, -3-i$
34. $x = -1, 2+3i, 2-3i$
35. D

36. D

37. B

38. B

39. HA: $y = 1$ VA: $x = 1, x = -1$ Slant: None

40. HA: None VA: $x = -5$ Slant: $y = 3x - 15$

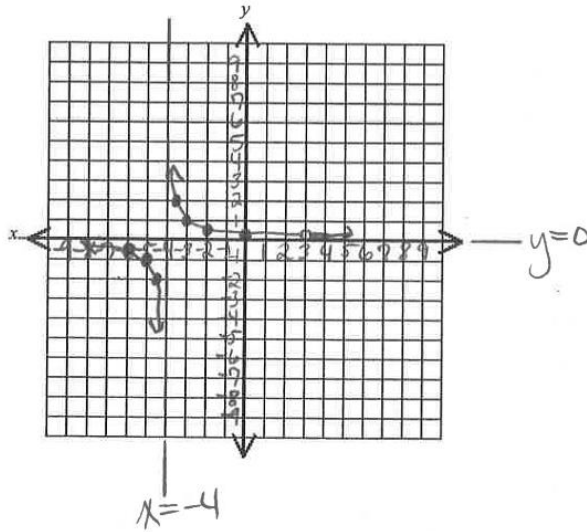
41. HA: $y = 3$ VA: $x = 9$ Slant: None

42. HA: $y = 0$ VA: $x = 0, x = 25$ Slant: None

43. HA: None VA: $x = -9$ Slant: $y = x - 7$

44. B

45.



46. $\log_6 b = a$

47. $\log_2 32 = 5$

48. $7^b = a$

49. $e^3 = x$

50. A

51. C

52. B

53. B

54. C

55. C

56. 1.5849

57. -1.1587

58. $\log_2 9 + \log_2 x$

59. $6 \log_6 x$

60. $\ln x + 3 \ln y - \ln 3 - x$

61. $\log_7 5 + 3 \log_7 x + \log_7 y + \frac{1}{2} \log_7 z$

62. $\ln 5x^2$

63. $\ln \frac{(x-4)^2}{x^2}$ or $\ln \frac{x^2 - 8x + 16}{x^2}$

64. $\log_4 32x^7y^4$

65. $\ln \frac{x^7}{y^3z^8}$

66. $\log_2 \frac{10}{a}$

67. $\log_6 \frac{5}{8}$

68. 2037

69. 23,571 rodents

70. 10.3 years

71. $x = \frac{1}{2}$

72. $x = \frac{1}{2}$

73. $x = 1.5$

74. $x \approx 6.3618$

75. $x \approx 2.5649$

76. $x \approx 0.9358$

77. $x \approx 1.6836$

78. $x \approx 146.4132$

79. $x = 5$

80. $x = 986$

81. $x = -4, x = 5$

82. $x = 4$

83. 300°

84. 286.48°

85. $\frac{2\pi}{3}$

86. $-\frac{\pi}{5}$

87. $332^\circ, -388^\circ$

88. $\frac{17\pi}{5}, -\frac{3\pi}{5}$

89. 66.16°

90. $-92^\circ 13' 48''$

91. $s = 26.86$ cm

92. $r = 15.1$ ft

93. 1057.32 miles

94. $9^\circ 51' 17''$

95. $\sqrt{3}$

96. $-\frac{2\sqrt{3}}{3}$

97. 0

98. $\frac{\sqrt{3}}{3}$

99. $\sqrt{2}$

100. -2

101. 1

102. $-\frac{\sqrt{2}}{2}$

103. $m\angle B = 63^\circ, a = 5.9, b = 11.6$

104. $-\frac{\sqrt{10}}{3}$

105. 32 feet

106. 44 feet

107. $-\frac{12}{13}$

108. -2

109. $-\frac{15}{17}$

110. Quadrant III

111. $\frac{\pi}{6}$

112. 80°

113. A

114. C

115. B

116. D

117. A

118. C

119. C

120. D

121. B

122. D

- 123. C
- 124. A
- 125. B
- 126. A
- 127. B

128. Period = 4π ; Phase shift: $\frac{2\pi}{3}$ units to the left ; Amplitude: 3

Domain: $(-\infty, \infty)$; Range: $[1, 7]$

Vertical Shift up 4 units ; Reflection over the x-axis ; Vertical stretch by a factor of 3

