

Pre-Calculus 11
Final Exam Review

Name _____

Date _____

1. What is the common difference in this arithmetic sequence?

$-9, -5, -1, \dots$

- a) -9 b) -8 c) -4 d) 4 e) 8

2. Complete the following arithmetic sequence.

$\square, 4, \square, \square, 15$

- a) $\frac{1}{3}; 7\frac{2}{3}; 11\frac{1}{3}$ b) $1; 7; 11$ c) $1\frac{1}{4}; 6\frac{3}{4}; 9\frac{1}{2}$ d) $2; 6; 10$ e) $\frac{8}{3}; 6; 9$

3. Determine the 8th term of the arithmetic sequence.

$34, 21, 8, \dots$

- a) -70 b) -57 c) -44 d) 70 e) 104

4. For the arithmetic sequence $15, 11, 7, 3, \dots$, determine t_{10} .

- a) -47 b) -42 c) -40 d) -25 e) -21

5. For the arithmetic sequence $35, 32, 29, 26, \dots$, determine t_n .

- a) $32 - 3n$ b) $32 + 3n$ c) $35 - 3n$ d) $38 - 3n$ e) $38 + 3n$

6. Determine the sum of the arithmetic series.

$3 + 6.5 + 10 + \dots + 157$

- a) 3440 b) 3520 c) 3532.5 d) 3600 e) 3680

7. Determine the sum of the first 25 terms in the arithmetic series $8 + 12 + 16 + 20 + \dots$.

- a) 1296 b) 1300 c) 1350 d) 1400 e) 1508

8. State the common ratio of the geometric sequence.

$27, 9, 3, \dots$

- a) -18 b) $\frac{1}{3}$ c) 3 d) 9 e) 27

9. What are the next three terms of the geometric sequence?

$60, 30, 15, \dots$

- a) $-\frac{15}{2}, \frac{15}{4}, -\frac{15}{8}$ b) $0, -15, -30$ c) $5, \frac{5}{3}, \frac{5}{9}$ d) $5, \frac{5}{2}, \frac{5}{4}$ e) $\frac{15}{2}, \frac{15}{4}, \frac{15}{8}$

10. Complete the following geometric sequence.

$\square, 64, \square, \square, -1$

- a) $-512; 8; -1$ b) $-256; -16; 4$ c) $-128; -32; 16$ d) $256; 16; 4$ e) $512; 8; 1$

11. What is the value of t_7 in the geometric sequence $400, -40, 4, \dots$?

- a) -0.00004 b) -0.0004 c) 0.00004 d) 0.0004 e) 0.004

12. Given the following infinite geometric series:

I. $5 - 15 + 45 - 135 + \dots$

II. $1 - 3 + 9 - 27 + \dots$

III. $1 - 4 + 16 + 64 + \dots$

IV. $12 - 4 + \frac{4}{3} - \frac{4}{9} + \dots$

Which series have a sum?

- a) I only b) IV only c) II and III d) II and IV e) III and IV

13. Determine the sum of the following infinite geometric series:

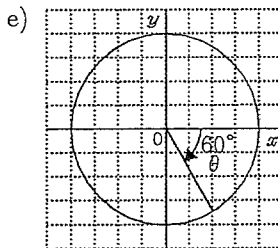
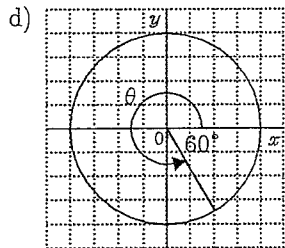
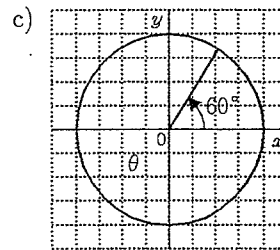
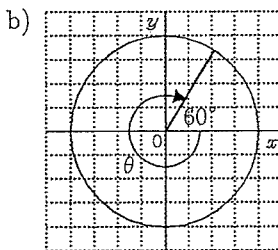
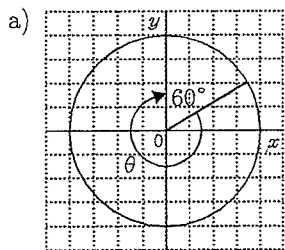
$$66 + 22 + \frac{22}{3} + \frac{22}{9} + \dots$$

- a) 66 b) 99 c) 198 d) 866 e) 2874

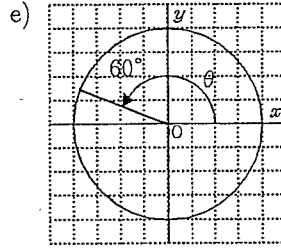
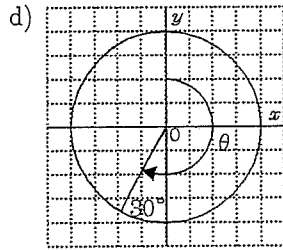
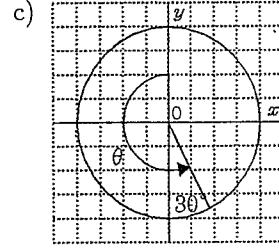
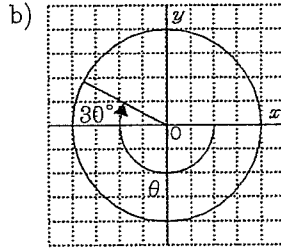
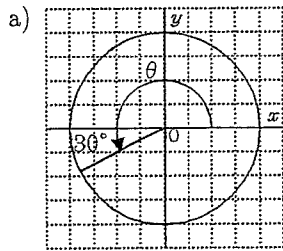
14. A ball is dropped from a height of 4 m. After each bounce, the ball rises to 55% of its previous height. What is the total vertical distance that the ball has travelled after it has hit the ground for the 7th time?

- a) 2.20 m b) 6.55 m c) 13.51 m d) 15.40 m e) 28.00 m

15. Which graph shows an angle θ of 60° in standard position?



16. Which graph shows the angle $\theta = 210^\circ$ in standard position?



17. The angle θ is in the second quadrant and $\cos \theta = -\frac{3}{\sqrt{13}}$.

Determine possible coordinates for point P on the terminal arm of θ .

- a) (2, -3) b) (2, 3) c) (3, -2) d) (-3, 2) e) (-3, 13)

18. Determine the exact value of $\sin 30^\circ$

- a) $\frac{\sqrt{2}}{2}$ b) $\sqrt{2}$ c) $\frac{1}{2}$ d) $-\frac{\sqrt{2}}{2}$ e) $\frac{\sqrt{3}}{2}$

19. Determine the exact value of $\sin 90^\circ$

- a) 1 b) $-\frac{\sqrt{2}}{2}$ c) $-\frac{1}{2}$ d) -1 e) $\frac{\sqrt{3}}{2}$

20. Determine the exact value of $\cos 135^\circ$

- a) -1 b) $\frac{1}{2}$ c) $\frac{\sqrt{3}}{2}$ d) $-\frac{\sqrt{2}}{2}$ e) $\frac{\sqrt{2}}{2}$

21. Determine the exact value of $\sin 45^\circ$

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

22. Given that $0^\circ \leq \angle D \leq 180^\circ$, determine the value(s) of $\angle D$ to the nearest degree when $\cos D = 0.5$.

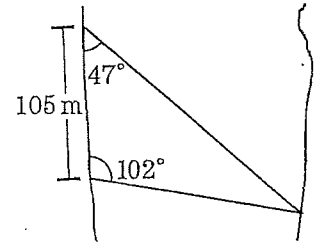
- a) 1° b) 30° c) 60° d) $60^\circ, 120^\circ$ e) 120°

23. How many solutions are there for $\sin x = \frac{\sqrt{2}}{2}$, where $0 \leq x \leq 360^\circ$?

- a) 2 b) 3 c) 4 d) 6 e) 12

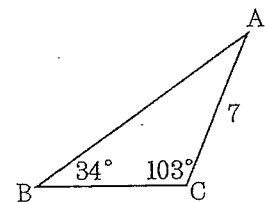
24. The site of a proposed bridge over a ravine is shown in the diagram. The bridge makes an angle of 47° with one side of the ravine. From a point 105 m along this side from the bridge, the angle to the opposite end of the bridge is 102° . Find the length of the proposed bridge to the nearest tenth of a metre.

a) 25.5 m b) 42.4 m c) 54.1 m d) 119.8 m e) 199.4 m



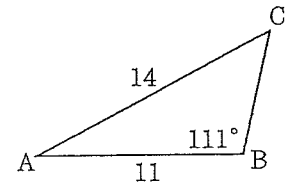
25. Calculate the length of AB in $\triangle CAB$ to 1 decimal place.

a) 4.3 b) 6.8 c) 12.2 d) 15.6 e) 24.8



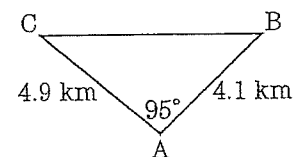
26. Calculate the measure of $\angle C$ in $\triangle BCA$ to the nearest tenth of a degree.

a) 20.9° b) 41.9° c) 44.4° d) 47.2° e) 51.8°



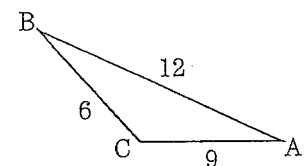
27. On a map of the Northern Rockies, Mt. Robson is at A. Two smaller summits are at B and C. For a climber on summit B, calculate the angle between the lines of sight to the summit at C and Mt. Robson to the nearest tenth of a degree.

a) 37.8° b) 42.0° c) 47.2° d) 48.0° e) 53.0°



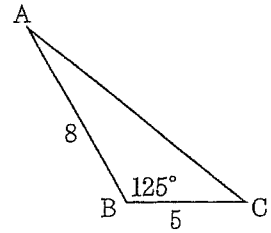
28. Calculate the measure of $\angle A$ in $\triangle CBA$ to the nearest tenth of a degree.

a) 29.0° b) 43.4° c) 46.6° d) 61.0° e) 104.5°



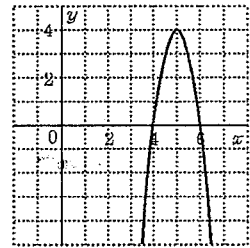
29. Calculate the length of AC in $\triangle BAC$ to 1 decimal place.

- a) 4.8 b) 6.6 c) 7.5 d) 10.6 e) 11.6



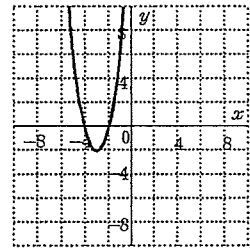
30. What are the coordinates of the vertex?

- a) (4, 5) b) (0, 4) c) (4, 6) d) (5, 0) e) (5, 4)



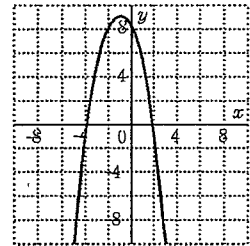
31. What is the equation of the axis of symmetry?

- a) $x = -3$ b) $x = -2$ c) $y = -3$ d) $y = -2$ e) $x + y = -5$



32. What are the domain and range of the function?

- a) D: $x < -4$ or $x > 2$; R: $y \leq 9$
 b) D: all real numbers; R: all real numbers
 c) D: $-4 \leq x \leq 2$; R: $y \leq 9$
 d) D: all real numbers; R: $y \leq 8$
 e) D: all real numbers; R: $y \leq 9$



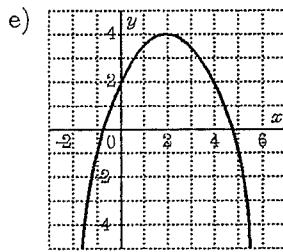
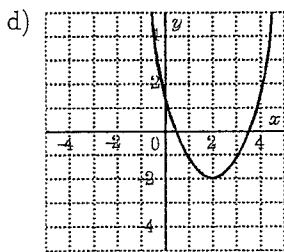
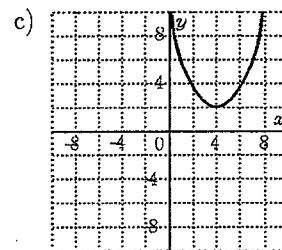
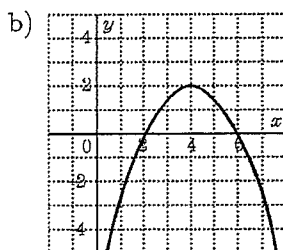
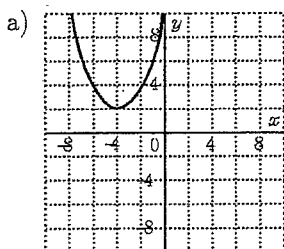
33. By graphing the quadratic function $f(x) = -x^2 + 2x + 8$, find the domain and the range.

- a) D: $-2 \leq x \leq 4$; R: all real numbers b) D: all real numbers; R: $y \geq 9$
 c) D: all real numbers; R: $y \leq 9$ d) D: $x \leq 1$; R: $y \leq 9$
 e) D: all real numbers; R: all real numbers

34. The parabola $y = x^2$ is changed to the form $y = a(x - p)^2 + q$ by translating the parabola 4 units down and 2 units right and expanding it vertically by a factor of 3. What are the values of a , p , and q ?

- a) $a = 3, p = -2, q = -4$ b) $a = 3, p = 2, q = -4$ c) $a = 3, p = 4, q = 2$
 d) $a = -4, p = 2, q = 3$ e) $a = -4, p = -2, q = 3$

35. Which of the following represents the graph of $y = -\frac{1}{2}(x - 2)^2 + 4$?



36. What happens to the graph of $y = 3(x - 4)^2 + q$ as q varies?

- The graph moves up as q increases and moves down as q decreases.
- The graph moves down as q increases and moves up as q decreases.
- The graph moves left as q increases and moves right as q decreases.
- The graph moves right as q increases and moves left as q decreases.
- The graph stretches vertically as q increases and it shrinks vertically as q decreases.

37. What are the coordinates of the vertex of the parabola $y = \frac{1}{2}(x + 2)^2 - 3$?

- a) $(-2, 3)$ b) $(2, -3)$ c) $(-2, -3)$ d) $(2, 3)$ e) $(\frac{1}{2}, 2)$

38. What is the equation of the axis of symmetry for the parabola $y = \frac{2}{3}(x - 2)^2 - 5$?

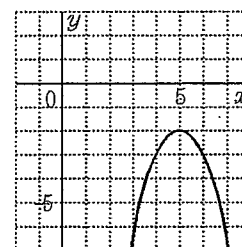
- a) $x = \frac{2}{3}$ b) $x = -2$ c) $x = 2$ d) $x = 5$ e) $x = -5$

39. What is the equation of the parabola with vertex $(0, 4)$ and passing through $(1, 6)$?

- a) $y = 2x^2 + 4$ b) $y = \frac{2}{3}(x - 4)^2$ c) $y = x^2 + 4$ d) $y = x^2 - 4$ e) $y = 10x^2 - 4$

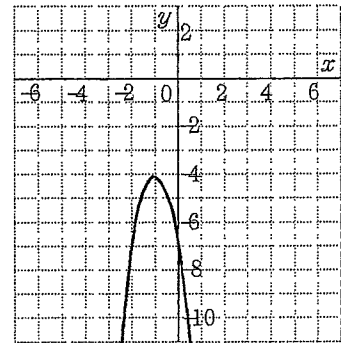
40. What is the equation of the given quadratic function?

- a) $y = 2(x + 5)^2 + 2$ b) $y = 2(x - 5)^2 + 2$ c) $y = -2(x - 5)^2 - 2$
 d) $y = -2(x + 5)^2 + 2$ e) $y = -2(x + 5)^2 - 2$



41. In the diagram shown, is the vertex a maximum or minimum point? What are the coordinates of the vertex?

- a) maximum; $(-4, 1)$ b) maximum; $(1, -4)$ c) maximum; $(-1, -4)$
 d) minimum; $(-1, -4)$ e) minimum; $(1, -4)$



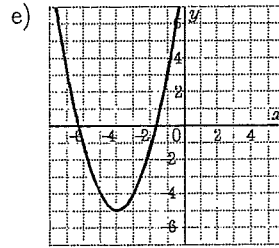
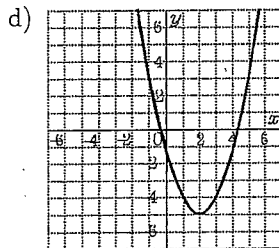
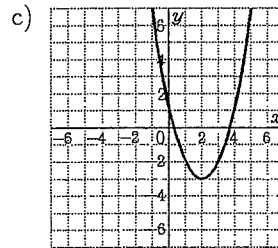
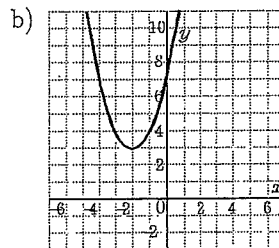
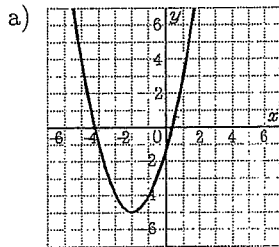
42. What does the quadratic equation $f(x) = x^2 + 4x + 8$ look like when it is rewritten in the form $f(x) = a(x - p)^2 + q$?

- a) $f(x) = (x + 2)^2 + 24$ b) $f(x) = (x - 2)^2 + 4$ c) $f(x) = (x + 2)^2 + 12$
 d) $f(x) = (x + 2)^2 + 4$ e) $f(x) = (x + 4)^2 + 4$

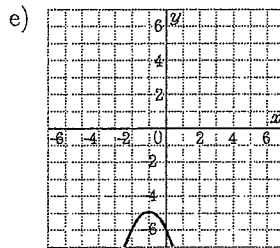
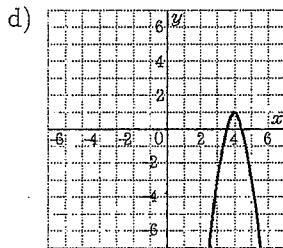
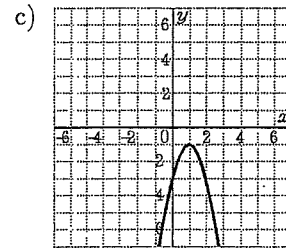
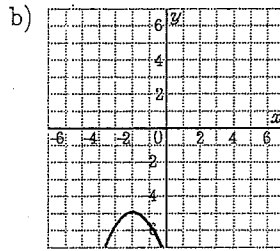
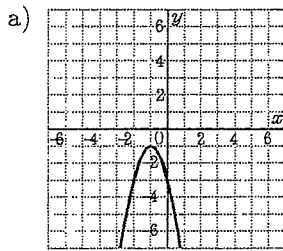
43. What does the quadratic equation $y = -3x^2 - 18x - 25$ look like when it is rewritten in the form $y = a(x - p)^2 + q$?

- a) $y = -3(x + 3)^2 + 2$ b) $y = -3(x - 9)^2 - 16$ c) $y = -3(x - 6)^2 - 19$
 d) $y = -3(x - 3)^2 + 2$ e) $y = -3(x + 6)^2 + 2$

44. Which of the following represents the graph of $y = x^2 - 4x + 1$?



45. Which of the following represents the graph of $f(t) = -2t^2 + 4t - 3$?



46. Does the parabola $y = 3(x - 1)^2 - 4$ contain a maximum or minimum point; what is the maximum or minimum value of y ?

- a) minimum point; 4 b) maximum point; 4 c) minimum point; -4
d) maximum point; 1 e) minimum point; 1

47. What are the domain and range of the function $y = 2(x + 4)^2 + 1$?

- a) D: $x \geq 4$; R: all real numbers b) D: $x \leq 4$; R: all real numbers c) D: all real numbers; R: $y \leq 1$
d) D: all real numbers; R: $y \geq 1$ e) D: $x \leq 4$; R: $y \leq 1$

48. Solve: $x^2 - 13x + 40 = 0$

- a) 5, 8 b) -5, -8 c) -5, 8 d) 20, -2 e) -20, -2

49. Determine the roots of $x^2 + 12x - 6 = 7x$.

- a) 6, -1 b) 1, -6 c) 5, -1 d) 1, -5 e) 6, -1, 0

50. Solve: $3m^2 - 36 = 2m^2$

- a) $\pm \frac{6}{\sqrt{5}}$ b) ± 6 c) ± 3 d) ± 2 e) 18

51. Solve $3x^2 - 2 = -5x$.

- a) $-2, \frac{1}{3}$ b) $-4, \frac{2}{3}$ c) -6, 1 d) $2, -\frac{1}{3}$ e) 6, -1

52. Solve $x^2 - 7x - 4 = 0$ using the quadratic formula.

- a) $-7 \pm \sqrt{65}$ b) $7 \pm \sqrt{33}$ c) $\frac{7 \pm \sqrt{65}}{2}$ d) $\frac{7 \pm \sqrt{33}}{2}$ e) $7 \pm \sqrt{65}$

53. Solve $x^2 - 8x + 2 = 0$ using the quadratic formula.

- a) $4 \pm 3\sqrt{2}$ b) $4 \pm \sqrt{14}$ c) $-4 \pm \sqrt{14}$ d) $-4 \pm 3\sqrt{2}$ e) $\frac{4 \pm \sqrt{14}}{4}$

54. Express $\sqrt{198}$ as a mixed radical in simplest form.

- a) $3\sqrt{2}$ b) $6\sqrt{2}$ c) $3\sqrt{22}$ d) $22\sqrt{3}$ e) 99

55. Multiply: $4\sqrt{10} \times 2\sqrt{15}$

- a) 40 b) $40\sqrt{6}$ c) $80\sqrt{3}$ d) $120\sqrt{10}$ e) $80\sqrt{15}$

56. Simplify: $\frac{15\sqrt{17}}{5\sqrt{34}}$

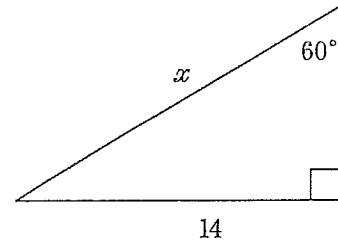
- a) $\frac{\sqrt{2}}{3}$ b) $\frac{\sqrt{2}}{2}$ c) $\sqrt{2}$ d) $\frac{3\sqrt{2}}{2}$ e) $3\sqrt{2}$

57. Determine an equivalent form: $\frac{\sqrt{48}}{2\sqrt{3}}$

- a) 2 b) $\sqrt{8}$ c) $2\sqrt{2}$ d) $2\sqrt{6}$ e) 8

58. Determine x in exact form.

- a) $\frac{14\sqrt{3}}{3}$ b) $\frac{14\sqrt{6}}{3}$ c) $\frac{28\sqrt{3}}{3}$ d) $7\sqrt{3}$ e) 28



59. Simplify: $9\sqrt{7} - 17\sqrt{7} + 24\sqrt{7}$

- a) $\sqrt{112}$ b) $\sqrt{350}$ c) $16\sqrt{7}$ d) $32\sqrt{7}$ e) $50\sqrt{7}$

60. Simplify: $2\sqrt{24} + 11\sqrt{54}$

- a) $-29\sqrt{6}$ b) $5\sqrt{6}$ c) $37\sqrt{6}$ d) $13\sqrt{78}$ e) $37\sqrt{12}$

61. Simplify: $2\sqrt{75} + 3\sqrt{112} - 8\sqrt{12} + 4\sqrt{175}$

- a) $-6\sqrt{3} - 8\sqrt{7}$ b) $-6\sqrt{3} + 32\sqrt{7}$ c) $16\sqrt{3} + 32\sqrt{7}$ d) $\sqrt{350}$ e) 206

62. Determine the exact value of $5\sqrt[3]{54} - 2\sqrt[3]{250}$.

- a) -42 b) $-5\sqrt[3]{2}$ c) $5\sqrt[3]{2}$ d) $25\sqrt[3]{2}$ e) $3\sqrt[3]{-196}$

63. Expand and simplify: $2\sqrt{6}(3\sqrt{2} - 4\sqrt{6})$

- a) $-36\sqrt{3}$ b) $\sqrt{3} - 4$ c) $10\sqrt{2} - 2$ d) $12\sqrt{3} - 48$ e) $12\sqrt{3} - 4\sqrt{6}$

64. Simplify: $(\sqrt{12} + 6)(\sqrt{3} + 2)$

- a) $12 + 10\sqrt{3}$ b) $18 + 10\sqrt{3}$ c) $18 + \sqrt{24} + \sqrt{18}$ d) $44 + 10\sqrt{3}$ e) $72 + 24\sqrt{3}$

65. Simplify: $(7 - 3\sqrt{2})^2$

- a) $31 - 42\sqrt{2}$ b) $31 - 21\sqrt{2}$ c) $49 - 33\sqrt{2}$ d) $67 - 21\sqrt{2}$ e) $67 - 42\sqrt{2}$

66. Simplify: $(2\sqrt{5} - \sqrt{10})(3\sqrt{2} + 2\sqrt{5})$

- a) $6\sqrt{10} + 4\sqrt{5} - 6\sqrt{5} - 10\sqrt{2}$ b) $6\sqrt{10} - 20 - 6\sqrt{5} - 10\sqrt{2}$ c) $6\sqrt{10} + 20 - 6\sqrt{5} - 10\sqrt{2}$
 d) $6\sqrt{10} + 20 - 6\sqrt{5} + 10\sqrt{2}$ e) $6\sqrt{10} + 20 + 6\sqrt{5} - 10\sqrt{2}$

67. Rationalize the denominator: $\frac{5\sqrt{2}}{12\sqrt{5}}$

- a) $\frac{\sqrt{10}}{720}$ b) $\frac{\sqrt{10}}{12}$ c) $\frac{5\sqrt{7}}{12}$ d) $\frac{5\sqrt{2}}{12}$ e) $\frac{5}{6\sqrt{10}}$

68. Rationalize the denominator: $\frac{10}{\sqrt{12} - \sqrt{7}}$

- a) $-2\sqrt{7} - 2\sqrt{12}$ b) 2 c) $2\sqrt{12} + 2\sqrt{7}$ d) $2\sqrt{12} - 2\sqrt{7}$ e) $2\sqrt{7} - 2\sqrt{12}$

69. Rationalize the denominator: $\frac{5\sqrt{3} - 3\sqrt{5}}{2\sqrt{5} - 3\sqrt{3}}$

- a) $-\frac{15 + \sqrt{15}}{7}$ b) $\frac{15 + \sqrt{5}}{47}$ c) $\frac{15 + \sqrt{5}}{7}$ d) $\frac{75 - 19\sqrt{15}}{7}$ e) $\frac{75 + 19\sqrt{15}}{7}$

70. For which value(s) of v is $\frac{18v - 4}{v^2 - 81}$ not defined?

- a) $\frac{2}{9}$ b) 3, -3 c) 9, -9 d) 81, -81 e) defined for all v

71. Which value(s) of s are not permitted for the rational expression $\frac{s^2 + 9s + 14}{s^2 - 6s - 27}$?

- a) -3, -9 b) -2, -7 c) -3 d) 3, 9 e) 9, -3

72. Reduce $\frac{-77x^2y}{7xy^2}$ to lowest terms.

- a) $11xy$ b) $-539x^3y^3$ c) $-\frac{11x}{y}$ d) $\frac{11x}{y}$ e) $-11x^3y^3$

73. Simplify: $\frac{16a - 16b}{4b - 4a}$

- a) 4 b) $\frac{16(b - a)}{4(a - b)}$ c) -4 d) $\frac{4(a + b)}{(b + a)}$ e) $\frac{a - b}{b - a}$

74. Simplify: $\frac{8t^2 - 128}{4t^2 + 36t + 80}$

- a) $-\frac{2(t - 4)}{(t + 5)}$ b) $\frac{8(t - 4)}{4(t + 5)}$ c) $\frac{t - 4}{t + 5}$ d) $\frac{2(t - 4)}{t + 5}$ e) $\frac{2(t + 5)}{t - 4}$

75. Simplify: $\frac{a^2 - 2a - 15}{25 - a} \div \frac{a + 3}{a + 2}$

- a) $\frac{a + 2}{a + 5}$ b) $\frac{a^2 - 3a - 10}{5 - a}$ c) $\frac{a^2 - 3a - 10}{25 - a}$ d) $\frac{a + 2}{a - 5}$ e) $\frac{a^2 - 3a - 10}{(5 - a)(5 + a)}$

76. Simplify: $\frac{a^2 - 7a - 18}{9 - a} \div \frac{a - 9}{3 - a}$

a) $\frac{-a^2 + a + 6}{9 - a}$

b) $\frac{a + 2}{a + 3}$

c) $\frac{a^2 + a + 6}{9 - a}$

d) $\frac{a^2 - a + 6}{9 - a}$

e) $\frac{a^2 - a - 6}{9 - a}$

77. Simplify: $\frac{\left(\frac{4xy}{8x^2 - 12x}\right)}{\left(\frac{12y}{8x^2 - 16}\right)}$

a) $\frac{x^2y - 4y}{6xy - 9y}$

b) $\frac{x^2 + 4}{6x - 9}$

c) $\frac{2x^2 - 4}{6x - 9}$

d) $\frac{6x - 9}{x^2 - 4}$

e) $48xy^2 + 192x$

78. Simplify: $\frac{4}{7x} - \frac{12x}{21x^2}$

a) $-\frac{4 - 12x}{7x^2 - 21x^2}$

b) $\frac{12x - 12x^2}{21x^2}$

c) $\frac{12x - 12x}{7x^2 - 21x^2}$

d) $\frac{12x}{21x^2}$

e) 0

79. Simplify: $\frac{2s + 7}{s - 9} - \frac{6s - 9}{s - 9}$

a) $\frac{-4s - 16}{s - 9}$

b) $\frac{4s + 16}{s - 9}$

c) $\frac{4s - 16}{s - 9}$

d) $\frac{8s + 16}{s - 9}$

e) $\frac{-4s + 16}{s - 9}$

80. Simplify: $\frac{8x}{x - 4} - \frac{2x}{x - 7}$

a) $\frac{-6x^2 - 48x}{x^2 - 11x + 28}$

b) $\frac{6x^2 + 48x}{x^2 - 11x + 28}$

c) $\frac{10x^2 + 48x}{x^2 + 11x + 28}$

d) $\frac{6x^2 - 48x}{x^2 - 11x + 28}$

e) $\frac{10x^2 - 70x}{x^2 - 11x + 28}$

81. Simplify: $\frac{3}{x + 2} - \frac{4}{x^2 - 4}$

a) $\frac{3x - 2}{(x + 2)(x - 2)}$

b) $\frac{3x + 10}{(x + 2)(x - 2)}$

c) $\frac{3x - 10}{(x - 2)(x - 2)}$

d) $\frac{3x - 10}{(x - 2)^2}$

e) $\frac{3x - 10}{(x + 2)(x - 2)}$

82. Simplify: $\frac{2}{x - 1} - \frac{2}{x^2 + 2x + 1}$

a) $\frac{2x^2 + 4}{(x + 1)(x - 1)^2}$

b) $\frac{2(x^2 + x + 2)}{(x + 1)^2(x - 1)}$

c) $\frac{2x + 4}{(x + 1)(x - 1)^2}$

d) $\frac{2x^2 + 4x - 1}{(x + 1)^2(x - 1)}$

e) $\frac{2(x^2 - 1)}{(x + 1)^2(x - 1)}$

83. Solve for x: $\frac{24}{x} = \frac{2x}{12}$

a) -12

b) 12

c) 12, -12

d) 144, -144

e) 288

84. Solve for x: $\frac{7}{x} - \frac{4}{6x} = 8$

a) $-\frac{19}{24}$

b) $\frac{19}{24}$

c) $\frac{24}{19}$

d) $\frac{8}{38}$

e) $\frac{38}{8}$

85. Solve: $\frac{1}{3x - 3} = \frac{2}{7x - 7}$

a) -4

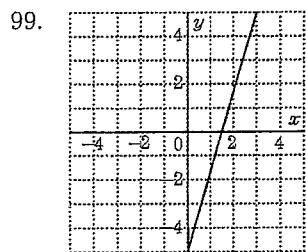
b) -1

c) 0

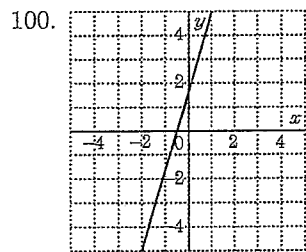
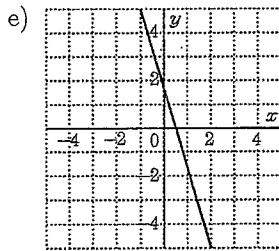
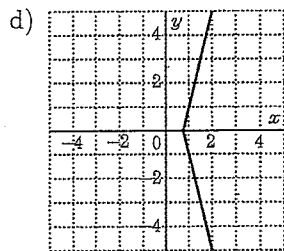
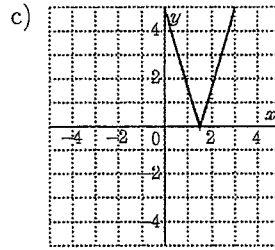
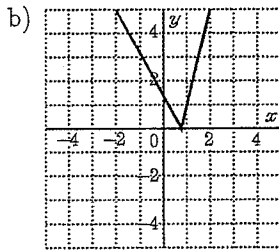
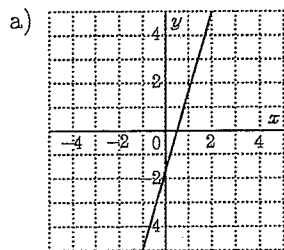
d) 1

e) 4

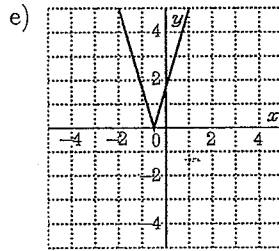
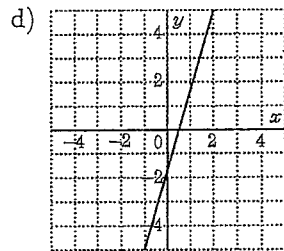
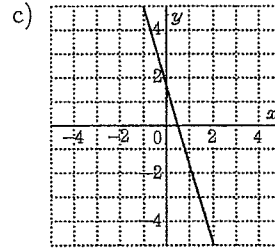
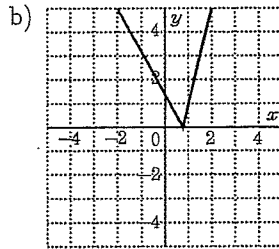
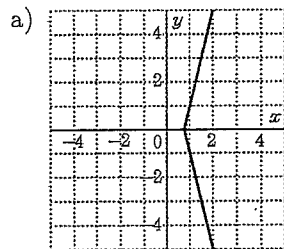
86. Solve: $x + \frac{9}{x+4} = 6$
- a) -9 only b) -5 only c) 5, -3 d) -5, 3 e) 3 only
87. Solve: $\frac{m+2}{m-2} - \frac{1}{2} = \frac{m+6}{m}$
- a) 6, -4 b) -6, 4 c) -6 only d) -4 only e) 6 only
88. On average, Jesse can bike five times as fast as he can run. To travel 25 km, he needs 2 h more if he is running than if he is biking. What is his average running speed? Round your answer to two decimal places.
- a) 2 km/h b) 5 km/h c) 10 km/h d) 20 km/h e) 50 km/h
89. Solve $-\frac{3}{x} + \frac{4}{x-1} = 1$
- a) $-\sqrt{3}, \sqrt{3}$ b) -1, 3 c) 2, -1 d) -3, 1 e) -2, -1
90. Solve $\frac{3}{x+2} + \frac{1}{x-4} = \frac{1}{4}$
- a) -2, 16 b) 2, 16 c) -2, -16 d) -16, 2 e) 4, 8
91. Solve $2\sqrt{x} = 14$.
- a) $\sqrt{7}$ b) 49 c) ± 7 d) 7 e) $2\sqrt{7}$
92. Solve $\sqrt{3x+4} = 13$.
- a) $\pm\sqrt{3}$ b) 3 c) 9 d) 27 e) $\sqrt{27}$
93. Solve $\sqrt{7x-3} = 4$.
- a) 1 b) $\frac{7}{19}$ c) $\frac{19}{7}$ d) $\frac{13}{7}$ e) $\frac{7}{13}$
94. Solve $\sqrt{7x+2} = \sqrt{3x+5}$.
- a) $-\frac{3}{4}$ b) $\frac{4}{7}$ c) $\frac{3}{4}$ d) $\frac{4}{3}$ e) $\frac{7}{4}$
95. Solve $|x-2| = 5$
- a) -3, 7 b) $-3 \leq x \leq 7$ c) -3 d) 7 e) ± 3
96. Solve $|x+3| = 5$
- a) -8 b) -2, 8 c) $-8 \leq x \leq 2$ d) 2 e) -8, 2
97. Solve $|3x+5| = 6x$
- a) $-\frac{5}{9}, \frac{5}{3}$ b) $-\frac{9}{5}, \frac{3}{5}$ c) $-\frac{5}{9}$ d) $\frac{5}{3}$ e) $\pm \frac{5}{3}$
98. Solve $|x+5| = x-2$
- a) $-\frac{3}{2}$ b) $0, \frac{3}{2}$ c) $-\frac{3}{2}, 0$ d) $\pm \frac{3}{2}$
e) no solution

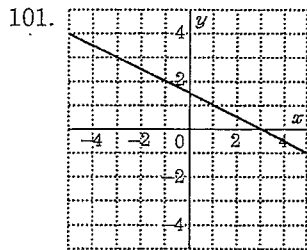


The graph of $y = f(x)$ is shown. Which is the graph of $y = |f(x)|$?

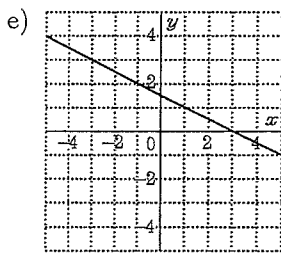
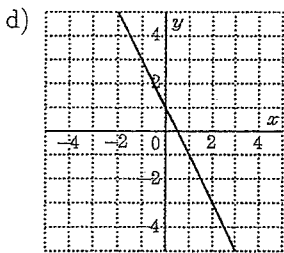
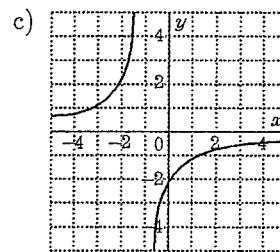
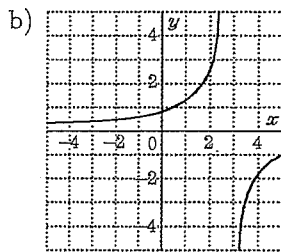
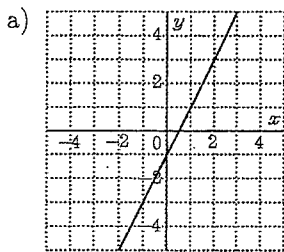


The graph of $y = f(x)$ is shown. Which is the graph of $y = |f(x)|$?





The graph of $y = f(x)$ is shown. Which is the graph of $y = \frac{1}{f(x)}$?



102. Which equation corresponds to the graph shown?

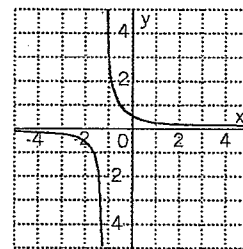
a) $y = 2x + 2$

b) $y = 2x - 2$

c) $y = \frac{1}{2x + 2}$

d) $y = \frac{1}{2x - 2}$

e) $y = |2x + 2|$



103. What is the equation of the graph shown?

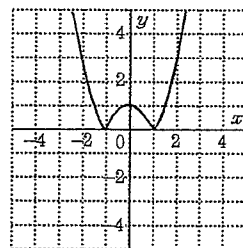
a) $y = |x^2 - 1|$

b) $y = \frac{1}{(x+1)^2}$

c) $y = (x+1)^2 - 2(x+1)$

d) $y = |x^2 + 2x|$

e) $y = |(x+1)^2|$



104. Given $y = x - 2$, what is (are) the asymptote(s) of the reciprocal function?

a) $x = 2$

b) $x = -2$

c) $y = 2$

d) $y = -2$

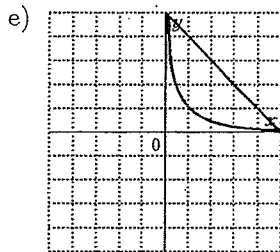
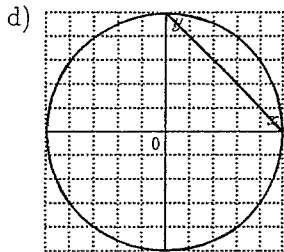
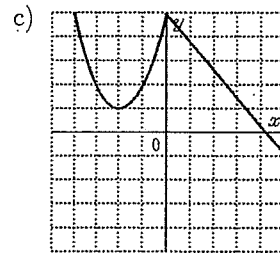
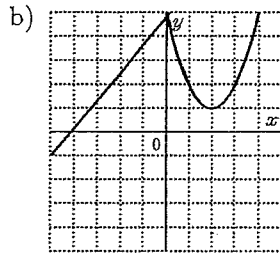
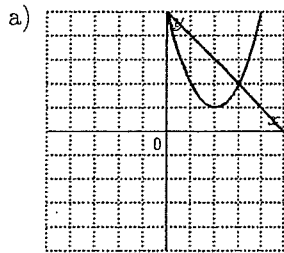
e) $x = \pm 2$

105. Given $y = x^2 - 9$, what is (are) the asymptote(s) of the reciprocal function?

- a) $x = 3$ b) $x = \pm 3$ c) $y = 3$ d) $x = -2$ e) $y = \pm 3$

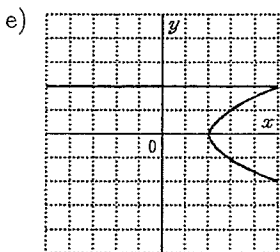
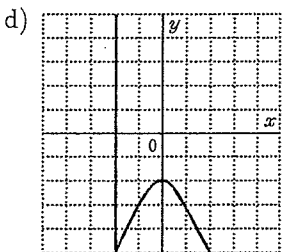
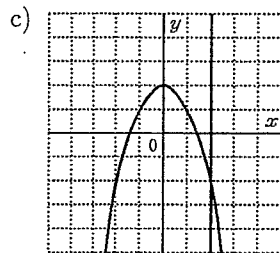
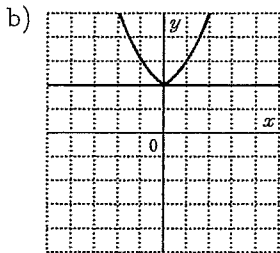
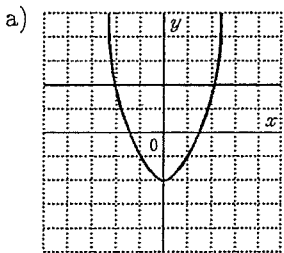
106. Which of the following graphs can be used to solve the system?

$$\begin{aligned} x + y &= 5 \\ y &= (x - 2)^2 + 1 \end{aligned}$$



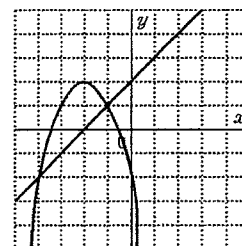
107. Which of the following graphs can be used to solve the system?

$$\begin{aligned} y &= 2 \\ y &= x^2 - 2 \end{aligned}$$



108. Which of the following appears to solve the system on the graph?

- a) (2, 2)
- b) (-1, 1), (-2, 0), (-4, -2)
- c) (-1, 1)
- d) (1, 1), (-4, -2)
- e) (-1, 1), (-4, -2)



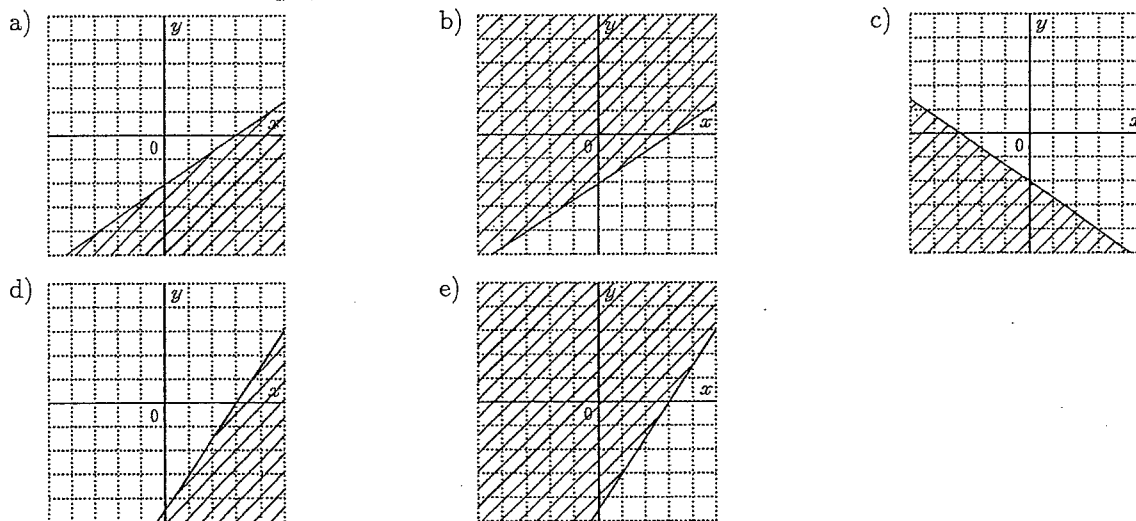
109. Solve the system $y = -x^2$
 $y = x - 2$

- a) (2, -4), (1, 1)
- b) (-2, -4), (1, -1)
- c) (-2, -4), (1, 1)
- d) (-1, 1), (-2, 4)
- e) (1, -1), (2, -4)

110. Solve the system $y = -x^2 + 1$
 $y = 2x + 1$

- a) (0, 1)
- b) (-2, -5), (0, 1)
- c) (0, 1), (-1, 0)
- d) (0, 1), (2, -3)
- e) (0, 1), (-2, -3)

111. Which is the correct graph of the inequality $2x + 3y + 6 \leq 0$?

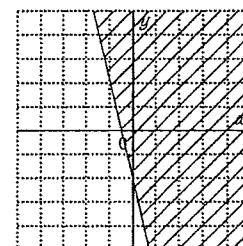


112. Which of the ordered pairs satisfies the inequality $3x - 4y \leq -4$?

- a) (3, 1)
- b) (-2, -1)
- c) (-3, -1)
- d) (-5, -5)
- e) (-5, -4)

113. Which is the correct inequality for the given graph?

- a) $4x + y \geq 2$
- b) $4x + y \geq -2$
- c) $\frac{1}{4}x - y \leq 2$
- d) $4x - y \geq 2$
- e) $4x - y \leq 2$



114. The given graph is the solution to which of the given inequalities?

I. $x - 2y \leq 3$

II. $x - 2y \geq -3$

III. $y \leq \frac{1}{2}x - 3$

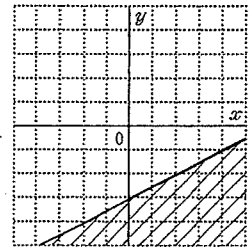
a) I

b) II

c) III

d) I and III

e) II and III



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Pre-Calculus 11 Final Exam Review 1/10/12

Answer List

- | | | |
|--------|--------|--------|
| 1. d | 2. a | 3. b |
| 4. e | 5. d | 6. d |
| 7. d | 8. b | 9. e |
| 10. b | 11. d | 12. b |
| 13. b | 14. c | 15. c |
| 16. a | 17. d | 18. c |
| 19. a | 20. d | 21. b |
| 22. c | 23. a | 24. e |
| 25. c | 26. d | 27. c |
| 28. a | 29. e | 30. e |
| 31. a | 32. e | 33. c |
| 34. b | 35. e | 36. a |
| 37. c | 38. c | 39. a |
| 40. c | 41. c | 42. d |
| 43. a | 44. c | 45. c |
| 46. c | 47. d | 48. a |
| 49. b | 50. b | 51. a |
| 52. c | 53. b | 54. c |
| 55. b | 56. d | 57. a |
| 58. c | 59. c | 60. c |
| 61. b | 62. c | 63. d |
| 64. b | 65. e | 66. c |
| 67. b | 68. c | 69. a |
| 70. c | 71. e | 72. c |
| 73. c | 74. d | 75. c |
| 76. a | 77. c | 78. e |
| 79. e | 80. d | 81. e |
| 82. b | 83. c | 84. b |
| 85. d | 86. c | 87. b |
| 88. c | 89. b | 90. b |
| 91. b | 92. d | 93. c |
| 94. c | 95. a | 96. e |
| 97. d | 98. e | 99. c |
| 100. e | 101. b | 102. c |
| 103. a | 104. a | 105. b |
| 106. a | 107. a | 108. e |
| 109. b | 110. e | 111. c |
| 112. c | 113. b | 114. c |