

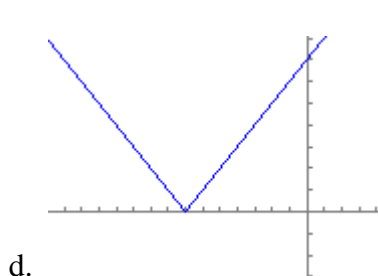
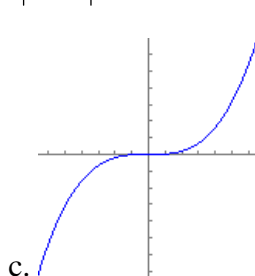
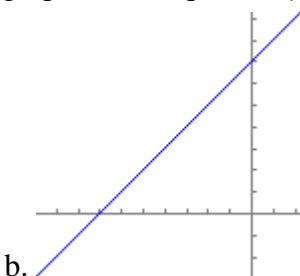
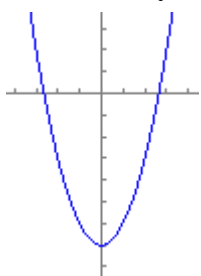
Sample Questions to the Final Exam in Math 1111—Chapter 1

Section 1.1

1. Determine which of the following points does not lie on the graph of $y = \frac{1}{x^2 + 1}$.

- a. $(-1, \frac{1}{2})$ b. $(-2, -\frac{1}{3})$ c. $(3, \frac{1}{10})$ d. $(6, \frac{1}{37})$ e. All lie on the graph

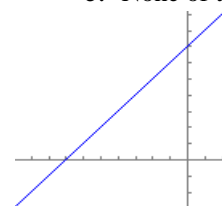
2. Identify the graph of the equation $y = |x + 7|$.



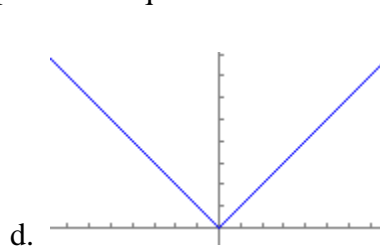
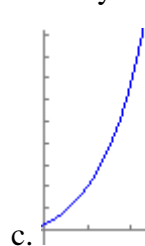
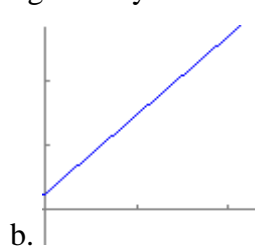
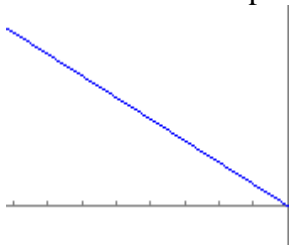
e. None of these

3. Determine which one of the following points is the x-intercept on the graph to the right.

- a. $(0, 7)$ b. $(0, 7)$ c. $(-7, 0)$ d. $(0, -7)$ e. None of These



4. The earnings per share for a certain corporation from 1985 to 1990 can be approximated by the mathematical model $y = 1.23t + 0.25$ where y is the earnings and t represents the calendar year with $t = 0$ corresponding to the year 1985. Identify the graph of this equation.



e. None of these

Section 1.2

1. Solve for x : $4(2 - 3x) = -2(3x + 3)$

- a. $x = \frac{1}{3}$ b. $x = \frac{7}{3}$ c. $x = \frac{9}{7}$ d. No solution e. None of these

2. Solve for x : $2 - 6 + 3x = 3x + 7$

- a. $x = -\frac{11}{6}$ b. $x = \frac{11}{6}$ c. $x = \frac{1}{6}$ d. No solution e. None of these

3. Solve for x : $\frac{7x}{x-2} + \frac{2x}{x+2} = 9$

- a. $-\frac{18}{5}$ b. $\frac{2}{3}$ c. $-\frac{2}{5}$ d. $\frac{5}{18}$ e. None of these

4. Solve for x: $\frac{2}{x} - \frac{1}{4} = \frac{2}{3}$
 a. $x=24$ b. $x = \frac{24}{11}$ c. $x = \frac{11}{24}$ d. $\frac{24}{5}$ e. None of these

Section 1.3

1. The handicap, H, for a bowler with an average score, A, of less than 200 is determined using the formula $H = 0.8(200 - A)$. Find a bowler's average score if his handicap is 64.
 a. 110 b. 120 c. 130 d. 140 e. None of these
2. A telephone call costs \$0.31 for the first minute plus \$0.24 for each additional minute. Write an algebraic expression for the cost of a call lasting x minutes.
 a. $0.31+0.24x$ b. $0.24x$ c. $0.31+0.24(x-1)$ d. $0.31+0.24(x+1)$ e. None of these
3. Maria inherited \$15,000. She decided to invest it in two funds, one paying 9 ¼% simple interest, the other paying 11 ½% simple interest. Her annual income from these investments will total \$1623.75. How much did she invest in the fund that pays 9 ¼% simple interest?
 a. \$4500 b. \$10,500 c. \$488 d. \$14,512 e. None of these
4. Given the formula for the perimeter of a rectangle, $P = 2w + 2l$, solve w .
 a. $w = \frac{2P-l}{2}$ b. $w = 2P-l$ c. $\frac{2}{P-2l}$ d. $w = \frac{P-2l}{2}$ e. None of these
5. The width of a soccer field is 40 yards less than the length. If the perimeter of the soccer field is 400 yards, what is the length of the soccer field?
 a. 80 yd b. 100yd c. 120yd d. 150yd e. None of these

Section 1.4

1. Simplify then write your result in standard complex number form:
 $(3+6i) - 2(i+7) - \sqrt{-4}$
 a. $1+4i$ b. $-11+6i$ c. $-11+2i$ d. $3+4i$ e. None of these
2. Multiply: $(3-\sqrt{-4})(7+\sqrt{-9})$
 a. $15+23i$ b. $27-5i$ c. $27+5i$ d. $15+5i$ e. None of these
3. Divide then write the result in standard complex number form: $\frac{-4+i}{1+4i}$
 a. $-\frac{8}{17}+i$ b. $-i$ c. i d. $\frac{8}{17}-i$ e. None of these

Section 1.5

1. Solve for x: $2x^2 + 4x = 9x + 18$
 a. $-2, \frac{9}{2}$ b. $2, -\frac{9}{2}$ c. $\frac{9}{2}$ d. $-\frac{9}{2}$ e. None of these
2. Solve for x: $(2x+3)^2 = 4$
 a. $\frac{1}{2}, \frac{5}{2}$ b. $-\frac{1}{2}$ c. $-\frac{5}{2}, -\frac{1}{2}$ d. ± 2 e. None of these
3. Solve for x: $x^2 + 4x - 2 = 0$

- a. $2 \pm \sqrt{6}$ b. $2 \pm \sqrt{2}$ c. $-2 \pm \sqrt{2}$ d. $-2 \pm \sqrt{6}$ e. None of these
4. Solve for x: $3x^2 - 6x + 2 = 0$
- a. $\frac{3 \pm \sqrt{3}}{3}$ b. $1 \pm \sqrt{3}$ c. $\frac{3 \pm \sqrt{15}}{3}$ d. $\frac{1}{3}, 2$ e. None of these
5. Solve for x: $x^2 - 2x + 10 = 0$
- a. 7, -1 b. $1 + 3i, -1 + 3i$ c. $1 + 3i, 1 - 3i$ d. 4, -2 e. None of these
6. Determine the constant that should be added to the equation $5x^2 + 4x - 2 = 0$ if it is to be solved by completing the square.
- a. $\frac{25}{2}$ b. $\frac{4}{25}$ c. $\frac{2}{25}$ d. 4 e. None of these
7. The width of a rectangle is 3 more than the length. If a diagonal is 5 units long, find the length of the rectangle. Let X be the length of the rectangle.
- a. $\frac{-3 \pm \sqrt{41}}{2}$ b. $\frac{-3 + \sqrt{41}}{2}$ c. $\frac{\sqrt{41}}{2}$ d. 11 e. None of these

Section 1.6

1. Solve: $x^3 - 5x - 2x^2 + 10 = 0$
- a. $-2, \pm\sqrt{5}$ b. $\pm\sqrt{5}$ c. $2, \sqrt{5}$ d. $2, \pm\sqrt{5}$ e. None of these
2. Solve for x: $9x^4 - 24x^2 + 16 = 0$
- a. $\pm\frac{2\sqrt{3}}{3}$ b. $\frac{2\sqrt{3}}{3}$ c. $0, \pm\frac{2\sqrt{3}}{3}$ d. $\frac{4}{3}$ e. None of these
3. Solve for x: $3x - 2\sqrt{x} - 5 = 0$
- a. $\frac{5}{3}$ b. $-1, \frac{5}{3}$ c. $1, \frac{25}{9}$ d. $\frac{25}{9}$ e. None of these
4. Solve for x: $(x^2 - 2x + 5)^{\frac{3}{2}} = 8$
- a. -1 b. 0 c. 1 d. 2 e. None of these
5. Solve for x: $\frac{2}{x^2 - 1} + \frac{1}{x + 1} = 5$
- a. $\frac{6}{5}$ b. $-1, \frac{6}{5}$ c. $\frac{1 \pm \sqrt{41}}{10}$ d. $\pm\frac{\sqrt{2}}{2}$ e. None of these
6. Solve the equality: $|x^2 - 2x| = 3x - 6$
- a. 2 b. $2, \pm 3$ c. 2, 3 d. ± 3 e. None of these

Section 1.7

1. Solve the inequality: $|2x - 5| \geq 7$.
- a. $[-1, 6]$ b. $[6, \infty)$ c. $(-\infty, -1] \cup [6, \infty)$ d. $(-\infty, -1]$ e. None of these
2. Solve the inequality: $-16 \leq 7 - 2x \leq 5$

a. $x \leq 1$ or $x \geq \frac{23}{2}$ b. $-1 \leq x \leq \frac{23}{2}$ c. $1 \leq x \leq \frac{23}{2}$ d. $-\frac{23}{2} \leq x \leq 1$ e. None of these

3. Solve the inequality: $|3x-1| < 2$

a. $(-\infty, -\frac{1}{3}) \cup (1, \infty)$ b. $[-\frac{1}{3}, 1]$ c. $(-\frac{1}{3}, 1)$ d. $(-\infty, -\frac{1}{3}] \cup [1, \infty)$ e. None of these

4. You buy a bag of candy that costs \$2.90 per pound. The weight that is listed on the bag is 1.10 pounds. If the scale that weighed the candy is only accurate to within 0.125 of a pound, how much money might you have been overcharged or undercharged?

a. $22 \frac{1}{8}$ cents b. $17 \frac{3}{4}$ cents c. $36 \frac{1}{4}$ cents d. $31 \frac{1}{2}$ cents e. None of these

5. Use interval notation to represent the inequality $-2 < x \leq 0$.

a. $(-2, 0)$ b. $[-2, 0)$ c. $(-2, 0]$ d. $[-2, 0]$ e. None of these