

Review Sheet (Revised)

The following instructions are understood on *all* tests:

1. Final answers cannot have little fractions in big fractions.
2. Final answers cannot have negative exponents.
3. Final answers cannot have fractions occurring in exponents.
4. Final answers cannot have variables under radicals in which the exponent on the variable is at least as large as the index on the radical.
5. The direction “factor” always means “factor completely”.
6. Never round unless instructed otherwise.
7. Guess and check receives at most half credit.

Following is a list of concepts you should know for the test:

- Section 1.1: (1 pt.) Determine the intersection or union of two sets.
(1 pt.) Determine the distance between two numbers.
(4 pts.) Convert a repeating decimal to a fraction.
- Section 1.2: (4 pts.) Simplify expressions involving radicals and/or exponents.
(4 pts.) Convert between decimal notation and scientific notation.
- Section 1.3: (5 pts.) Factor polynomial expressions.
- Section 1.4: (2 pts.) Simplify rational expressions.
(2 pts.) Rationalize a numerator and/or denominator of a fraction.
- Section 1.5: (6 pts.) Solve quadratic equations by completing the square.
(3 pts.) Know the quadratic formula and how to use it.
(6 pts.) Solve radical equations.
(3 pts.) Solve absolute value equations.
- Section 1.6: (19 pts.) Solve word problems.
- Section 1.7: (6 pts.) Solve polynomial and/or rational inequalities.
(4 pts.) Solve absolute value inequalities.
- Section 1.8: (2 pts.) Know the distance formula and how to use it.
(2 pts.) Know the midpoint formula and how to use it.
(7 pts.) Know the standard form of the equation of a circle and how the center and radius relate to it.
- Section 1.10: (1 pt.) Determine the slope of a line from an equation.
(8 pts.) Determine the equation of a line passing through a point and either parallel or perpendicular to a given line.
- Section 2.1: (4 pts.) Determine the domain of a function.
(6 pts.) Know how to use the difference quotient.

Formulas

Distance formula for \mathbb{R} : The distance between a and b is

$$|a - b|.$$

Quadratic formula: If $ax^2 + bx + c = 0$ and $a \neq 0$, then

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}.$$

Distance formula for \mathbb{R}^2 : The distance between (x_1, y_1) and (x_2, y_2) is

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}.$$

Midpoint formula: The midpoint of the line segment with endpoints (x_1, y_1) and (x_2, y_2) is

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right).$$

Standard form of equation of a circle: The standard equation of a circle with center (h, k) and radius r is

$$(x - h)^2 + (y - k)^2 = r^2.$$

Slope-intercept form of a line: An equation for a line with slope m and y -intercept $(0, b)$ is

$$y = mx + b.$$

Point-slope form of a line: An equation for a line that passes through (x_1, y_1) and has slope m is

$$y - y_1 = m(x - x_1).$$