

SELF-TEST #2: Practice for 50-pt-Quiz #2 (on Chapter 1)

answers will be posted on website

1. Solve an equation for one variable in terms of another. Solve for the variable named:

a. $x: a - 2(b - 3(c - x)) = 6$ b. $a: \frac{a+1}{b} = \frac{a-1}{b} + \frac{b+1}{a}$

c. $i: A = P \left(1 + \frac{i}{100} \right)^2$ d. $r: S = \frac{a}{1-r}$

e. $c: \frac{1}{s+a} + \frac{2}{s-a} = \frac{5}{s+c}$

2. Solve a quadratic equation. (Simplify your answers.)

a. $3x^2 - 12x - 1 = 0$ b. $5x = 2x^2 + 1$

c. $2x^2 + 12x + 1 = 0$ d. $2x^2 + 4x + 3 = 0$ e. $x^2 + 10 = -6x$

3. Simplify an expression involving complex numbers. (Express answers in the form $a + bi$.)

a. $(2 - \sqrt{-2})(\sqrt{8} - \sqrt{-4})$ b. $(1 - \sqrt{-3})(2 + \sqrt{-4})$

c. $\frac{1 - \sqrt{-1}}{1 + \sqrt{-1}}$ d. $\frac{2 + \sqrt{-8}}{1 + \sqrt{-2}}$ e. $(2 - \sqrt{-36})^{-1}$

4. Solve an equation by factoring.

a. $x^6 + 9x^4 - 4x^2 - 36 = 0$ b. $2(x-4)^{7/3} - (x-4)^{4/3} - (x-4)^{1/3} = 0$

c. $x^{1/2} - 3x^{1/3} = 3x^{1/6} - 9$ d. $x^{1/2} + 3x^{-1/2} = 10x^{-3/2}$

e. $x^2 \sqrt{x+3} = (x+3)^{3/2}$

5. Solve a rational inequality. (Express answers using interval notation.)

a. $\frac{x}{x+2} \leq \frac{1}{x}$ b. $\frac{2x+5}{x+1} \leq 1$ c. $\frac{9}{x} < x$

d. $\frac{3}{x-1} - \frac{x}{x+1} \geq 1$ e. $-3 \leq \frac{x+1}{x-3}$

6. Solve an inequality involving absolute value.

a. $3 - |2x+4| \leq 1$ b. $4|3-x| + 3 \geq 15$

c. $2\left|\frac{1}{2}x+3\right| + 3 \leq 51$ d. $\left|\frac{x+1}{2}\right| > 6$ e. $\left|\frac{x-2}{3}\right| < 2$