

### M\$5 Homework 23

In 1 – 4, write a quadratic equation with integer coefficients with the given solution set.

1.  $\{1, -2\}$

2.  $\left\{\frac{2}{3}, -1\right\}$

3.  $\{2 \pm \sqrt{3}\}$

4.  $\{-1 \pm 2i\}$

5. Which expression is equivalent to  $\frac{4}{3 + \sqrt{2}}$  ?

(1)  $\frac{12 + 4\sqrt{2}}{7}$

(3)  $\frac{12 - 4\sqrt{2}}{7}$

(2)  $\frac{12 + 4\sqrt{2}}{11}$

(4)  $\frac{12 - 4\sqrt{2}}{11}$

6. Which expression is the multiplicative inverse of  $1 - \sqrt{3}$  ?

(1)  $1 + \sqrt{3}$

(3)  $-\frac{1}{2}$

(2)  $-1 + \sqrt{3}$

(4)  $\frac{-1 - \sqrt{3}}{2}$

7. Simplify:

$$\frac{\frac{1}{x^2} + \frac{1}{xy^2}}{\frac{1}{y^2} + \frac{1}{x}}$$

8. Solve for  $x$  and express the roots in simplest  $a + bi$  form :  $4x + \frac{3}{x} = 6$

9. The relationship between voltage,  $E$ , current,  $I$ , and resistance,  $Z$ , is given by the equation  $E = IZ$  . If a circuit has a current  $I = 3 + 2i$  and a resistance  $Z = 2 - i$ , what is the voltage of this circuit?

(1)  $8 + i$

(3)  $4 + i$

(2)  $8 + 7i$

(4)  $4 - i$