Name: _____ M$5 Homework 28

1. Write a quadratic equation with integer coefficients with the solution set: $\{1,-2\}$

1. _____

2. Write a quadratic equation with integer coefficients with the solution set: $\left\{\frac{2}{3},-1\right\}$

2. _____

3. Write a quadratic equation with integer coefficients with the solution set: $\left\{2\pm\sqrt{3}\right\}$

3. _____

4. Write a quadratic equation with integer coefficients with the solution set: $\{-1\pm 2i\}$

4. _____

5. The roots of the equation $ax^2+4x=-2$ are real, rational, and equal when $a$ has a value of

(1) 1 (3) 3
(2) 2 (4) 4

5. _____

6. 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. _____

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

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

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

8. In the equation $x^2-7x+2=0$, the sum of the roots exceeds the product of the roots by

(1) 9 (3) –9

(2) 5 (4) –5

9. Which equation has rational roots?

(1) $x^2+8x-8=0$ (3) $2x^2+4x+5=0$

(2) $x^2+8x+9=0$ (4) $3x^2+8x+4=0$

10. Simplify:

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

Solve for $x$ and express the roots in simplest $a+bi$ form:

11. $4x+\frac{3}{x}=6$

12. 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) $4-i$

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____