

Worksheet 15 - Lesson 46

Date _____ Period _____

Factor each using difference of squares and/or sum and difference of cubes.

1) $x^8 - x^2 = 0$

2) $x^8 - 17x^4 + 16 = 0$

3) $x^6 + 6x^4 + 8x^2 = 0$

4) $x^7 - x = 0$

Find all zeros by using the quadratic formula.

5) $f(x) = 3x^2 - 5x + 8$

6) $f(x) = 3x^2 - x + 2$

7) $f(x) = 2x^2 - 4x + 3$

8) $f(x) = x^2 + 4x + 9$

Find the number of unique permutations of the letters in each word.

9) RARE

10) HYPHEN

11) DEEPEN

12) RUDDY

Find the number of possibilities in each scenario.

13) A team of 15 soccer players needs to choose a captain and co-captain.

14) A group of 45 people are going to run a race. The top three runners earn gold, silver, and bronze medals.

Answers to Worksheet 15 - Lesson 46

- 1) $x^2(x-1)(x^2+x+1)(x+1)(x^2-x+1)=0$ 2) $(x-1)(x+1)(x^2+1)(x-2)(x+2)(x^2+4)=0$
3) $x^2(x^2+2)(x^2+4)=0$ 4) $x(x-1)(x^2+x+1)(x+1)(x^2-x+1)=0$
5) $\left\{\frac{5+i\sqrt{71}}{6}, \frac{5-i\sqrt{71}}{6}\right\}$ 6) $\left\{\frac{1+i\sqrt{23}}{6}, \frac{1-i\sqrt{23}}{6}\right\}$ 7) $\left\{\frac{2+i\sqrt{2}}{2}, \frac{2-i\sqrt{2}}{2}\right\}$
8) $\{-2+i\sqrt{5}, -2-i\sqrt{5}\}$ 9) 12 10) 360
11) 120 12) 60 13) 210 14) 85,140