

Arithmetic with Polynomials - Worksheet 1

Answer Key

P and Q are polynomials where

$$P = x^2 + 3x - 4,$$

$$Q = x + 5.$$

Simplify the following:

1. $P + Q$
 $x^2 + 4x + 1.$

2. $P - Q$
 $x^2 + 2x - 9.$

3. $Q - P$
 $-x^2 - 2x + 9.$

4. QP
 $x^3 + 8x^2 + 11x - 20.$

5. How many terms are in P ? How many terms are in Q ?
3 terms in P , 2 terms in Q .

6. How does the number of terms change if you add P and Q ? If you multiply P and Q ?
 $P + Q$ has 3 terms. PQ has 4 terms.

7. Can you determine the number of terms when a polynomial of degree m is multiplied to a polynomial of degree n ?
There will be at most $m + n + 1$ terms.

Johnny and Karine have invested some of their money in the stock market, which has been fluctuating over time. The projected value of Johnny's assets after t years is $t^3 + 2t^2 - 3t + 400$. Karine's projected assets after t years is $t^4 - 5t^2 + 100$.

8. How much money did each of them invest?
Johnny initially invested 400 and Karine initially invested 100.

9. What is their combined wealth after seven years?
Together they have $\$820 + \$2256 = \$3076$.

10. What is their combined wealth after t years?
After t years, they have $t^4 + t^3 - 3t^2 - 3t + 500$.

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