

[polynomials 2]

1. Simplify:

$$3(4m - 7n)(3m - 2n) - (7m - 5n)(7m + 5n)$$

2. Factor fully:

- a. $6x^2y + 15xy^2 - 27xy$
- b. $m^2 - 9m + 20$
- c. $3x(2a - 7) + 5y(2a - 7)$
- d. $xm - xn + ym - yn$
- e. $2x^3 - 3x^2 + 3 - 2x$
- f. $(x + y)^2 - x - y$
- g. $5x^2 - 7x + 2$
- h. $6m^2 - m - 40$
- i. $x^4 - 81$
- j. $4m^2 - (6m - 7)^2$
- k. $x^2 - y^2 - 14yz - 49z^2$
- l. $8x^3 + 27y^3$
- m. $64a^6 - 1$
- n. $m^4 + 6m^2 - 16$
- o. $(x^2 + 3x)^2 - 2(x^2 + 3x) - 8$
- p. $x^3 + x^2 - 14x - 24$

3. Divide:

- a. $(x^3 - 5x^2 - 3x + 28) \div (x - 4)$
- b. $(2x^4 - x^3 + 11x + 3) \div (2x + 3)$

4. Find the remainder when $n^4 - 3n^2 + 7$ is divided by $n + 3$

5. Find k if $(x + 2)$ is a factor of $x^3 + 5x^2 + kx + 6$