1 Polynomials

- Dividide these polinomials using Ruffini's rule
  a) $\left(-2x^4 - 2x^3 - 9x^2 - 4x + 4\right) : (x - 7)$
  b) $\left(4x^3 - 5x^2 + 3\right) : (x + 3)$
  c) $\left(6x^2 - 7x - 6\right) : (x + 8)$
  d) $\left(-6x^2 + 2x - 2\right) : (x - 2)$
- Dividide these polinomials
  a) $\left(20x^3 + 8x^2 - 22x + 4\right) : \left(-4x^2 + 2\right)$
  b) $\left(9x^3 - 3x^2 - 27x - 10\right) : \left(-3x^2 + 4x + 5\right)$
  c) $\left(3x^3 + 2x^2 - 6x + 1\right) : \left(x^2 - 2\right)$
  d) $\left(-6x^3 + 11x^2 - 1x + 1\right) : \left(-2x^2 + x + 1\right)$
- Expand these algebraic identities
  a) $(t - 4m)^2 =$
  b) $(x + 5z) \cdot (x - 5z) =$
  c) $\left(5z^4 + y^4\right) \cdot \left(5z^4 - y^4\right) =$
  d) $\left(5t^4 - 3x^4\right)^2 =$
  e) $\left(\frac{13}{5}y^4 - 4z^4\right)^2 =$
  f) $\left(\frac{9}{5}m^3 - 4y^3\right)^2 =$
- Write these polynomials as an algebraic identity
  a) $z^2 - 10xz + 25x^2 =$
  b) $z^2 - 2bz + b^2 =$
  c) $x^6 - 6x^3y^3 + 9y^6 =$
  d) $\frac{121}{9}z^8 - \frac{44}{3}x^4z^4 + 4x^8 =$
- Extract common factor from these polynomials
  a) $-2x^3z^2 + 8x^2z^2 - 8xz^2 =$
  b) $12a^5x^7 + 20a^5x^6 - 12a^5x^5 =$
  c) $-2x^4y^4 - 10x^4y^3 + 2x^4y^2 =$

2 Answers

a) $Q(x) = -2x^3 - 16x^2 - 121x - 851$; $R = -5953$
b) $Q(x) = 4x^2 - 17x + 51$; $R = -150$
c) $Q(x) = 6x - 55$; $R = 434$
d) $Q(x) = -6x - 10$; $R = -22$

a) $Q(x) = -5x + 3$; $R = -2$
b) $Q(x) = -3x - 3$; $R = 5$
c) $Q(x) = 3x + 2$; $R = 5$
d) $Q(x) = 3x - 4$; $R = 5$

a) $t^2 - 8mt + 16m^2$
b) $x^2 - 25z^2$
c) $25z^8 - y^8$
d) $25t^8 - 30t^4x^4 + 9x^8$
e) $\frac{169}{25}y^8 - \frac{104}{5}y^4z^4 + 16z^8$
f) $\frac{81}{25}m^6 - \frac{72}{5}m^3y^3 + 16y^6$

a) $(z - 5x)^2$
b) $(z - b)^2$
c) $\left(x^3 - 3y^3\right)^2$
d) $\left(\frac{11}{3}z^4 - 2x^4\right)^2$

a) $2xz^2 \cdot \left(-x^2 + 4x - 4\right)$
b) $4a^5x^5 \cdot \left(3x^2 + 5x - 3\right)$
c) $2x^4y^2 \cdot \left(-y^2 - 5y + 1\right)$