



Factorizations Ex 7.5 Q41

Answer :

$$\begin{aligned} & a^4 - 16(b - c)^4 \\ &= (a^2)^2 - [4(b - c)^2]^2 \\ &= [a^2 + 4(b - c)^2][a^2 - 4(b - c)^2] \\ &= [a^2 + 4(b - c)^2]\{a^2 - [2(b - c)]^2\} \\ &= [a^2 + 4(b - c)^2][a + 2(b - c)][a - 2(b - c)] \\ &= [a^2 + 4(b - c)^2](a + 2b - 2c)(a - 2b + 2c) \end{aligned}$$

Factorizations Ex 7.5 Q42

Answer :

$$\begin{aligned} & 2a^5 - 32a \\ &= 2a(a^4 - 16) \\ &= 2a[(a^2)^2 - 4^2] \\ &= 2a(a^2 + 4)(a^2 - 4) \\ &= 2a(a^2 + 4)(a^2 - 2^2) \\ &= 2a(a^2 + 4)(a + 2)(a - 2) \\ &= 2a(a - 2)(a + 2)(a^2 + 4) \end{aligned}$$

Factorizations Ex 7.5 Q43

Answer :

$$\begin{aligned} & a^4b^4 - 81c^4 \\ &= \left(a^2b^2\right)^2 - \left(9c^2\right)^2 \\ &= \left(a^2b^2 + 9c^2\right)\left(a^2b^2 - 9c^2\right) \\ &= \left(a^2b^2 + 9c^2\right)\left[\left(ab\right)^2 - \left(3c\right)^2\right] \\ &= \left(a^2b^2 + 9c^2\right)\left(ab + 3c\right)\left(ab - 3c\right) \end{aligned}$$

Factorizations Ex 7.5 Q44

Answer :

$$\begin{aligned} & xy^9 - yx^9 \\ &= xy(y^8 - x^8) \\ &= xy[(y^4)^2 - (x^4)^2] \\ &= xy(y^4 + x^4)(y^4 - x^4) \\ &= xy(y^4 + x^4)[(y^2)^2 - (x^2)^2] \\ &= xy(y^4 + x^4)(y^2 + x^2)(y^2 - x^2) \\ &= xy(y^4 + x^4)(y^2 + x^2)(y + x)(y - x) \end{aligned}$$

Factorizations Ex 7.5 Q45

Answer :

$$\begin{aligned} & x^3 - x \\ &= x(x^2 - 1) \\ &= x(x - 1)(x + 1) \end{aligned}$$

Factorizations Ex 7.5 Q46

Answer :

$$\begin{aligned} & 18a^2x^2 - 32 \\ &= 2(9a^2x^2 - 16) \\ &= 2\left[\left(3ax\right)^2 - 4^2\right] \\ &= 2(3ax - 4)(3ax + 4) \end{aligned}$$

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