

Polynomials Factoring (Higher Order) - Intro

- 1** Find common factors of the first 2 and last 2 terms

$$63z^2 + 18z - 56z - 16$$

A $9z(7z - 2) - 8(7z - 2)$

B $9z(7z + 8) - 2(7z + 8)$

C $9z(7z + 2) - 8(7z + 2)$

D $7z(9z + 2) - 8(9z + 2)$

E $9z(7z + 2) + 8(7z + 2)$

- 2** Consolidate the shared, bracketed factors to simplify

$$3z(z + 6) + 4(z + 6)$$

A $(3z - 6)(24z + 4)$

B $(z + 6)(3z + 4)$

- 3** Find common factors of the first 2 and last 2 terms, and solve.

$$7z^2 + 14z + 5z + 10$$

A $(19z + 2)(4z + 5)$

B $(z + 2)(7z + 5)$

- 4** Find common factors of the first 2 and last 2 terms, and solve.

$$24y^2 + 21y + 40y + 35$$

A $(y - 7)(61y + 5)$

B $(3y - 7)(35y + 5)$

C $(61y + 7)(8y + 5)$

D $(8y + 7)(3y + 5)$

E $(3y + 7)(35y + 5)$

- 5** Factor this higher order polynomial

$$t^4 - 13t^2 + 36$$

hint:
 $n^2 - 13n + 36$
 $n = t^2$

A $(t^2 - 4)(t^2 - 9)$

B $(t^2 + 4)(t^2 + 9)$

- 6** Factor this higher order polynomial

$$w^4 - 9w^2 + 20$$

A $(w^2 - 4)(w^2 - 5)$

B $(20w^2 - 4)(w^2 + 5)$

- 7** Factor this higher order polynomial

$$25n^4 - 64$$

hint:
 $x^2 - 64$
 $x = 5n^2$

A $(5n^2 + 8)(5n^2 - 8)$

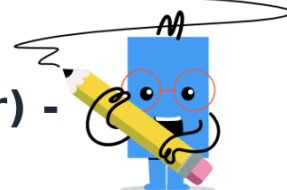
B $(25n^2 + 5)(25n^2 - 8)$

- 8** Factor this higher order polynomial

$$81z^4 + 99z^2 + 24$$

A $(24z^2 + 8)(z^2 - 3)$

B $(9z^2 + 8)(9z^2 + 3)$



Polynomials Factoring (Higher Order) - Intro

9 Is this factoring step correct?

$$n^4 - 4n^2 - 12 \\ = (n^2 + 6)(n^2 + 2)$$

A

Yes

B

No

10 Is this factoring step correct?

$$81n^4 - 16 \\ = (81n^2 - 4)(n^2 + 4)$$

A

Yes

B

No

11 Use the sum of cubes formula to factor this polynomial

$$r^3 + 125$$

hint:
 $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

A

$$(r + 5)(r^2 - 5r + 25)$$

B

$$(r + 5)(r^2 + 5r - 25)$$

12 Use the sum of cubes formula to factor this polynomial

$$m^3 + 125$$

A

$$(m + 5)(m^2 + 5m - 25)$$

B

$$(m + 5)(m^2 - 5m + 25)$$

13 Use the sum of cubes formula to factor this polynomial

$$27t^3 - 27$$

hint:
 $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$
 $a = 3t$

A

$$(3t + 9)(9t^2 + 9t + 3)$$

B

$$(3t - 3)(9t^2 + 9t - 9)$$

14 Use the sum of cubes formula to factor this polynomial

$$27z^3 - 8$$

A

$$(3z - 2)(9z^2 + 6z - 4)$$

B

$$(2z + 4)(9z^2 + 6z + 2)$$

15 Is this factoring step correct?

$$x^3 - 125 \\ = (x - 5)(x^2 + 5x - 25)$$

A

Yes

B

No

16 Is this factoring step correct?

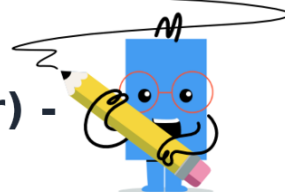
$$8n^3 - 64 \\ = (2n + 4)(4n^2 - 8n + 16)$$

A

No

B

Yes



Polynomials Factoring (Higher Order) - Intro

- 17** Group the terms in pairs and remove a common factor to begin factoring by grouping

$$z^3 + 6z^2 + 3z + 18$$

A

$$z^2(z - 6) + 18(z - 6)$$

B

$$z^2(z + 6) + 3(z + 6)$$

- 18** Consolidate the shared common factor to create 2 binomial factors

$$q^2(q - 5) - 9(q - 5)$$

A

$$(q + 5)(q^2 - 45)$$

B

$$(q - 5)(q^2 - 9)$$

- 19** Factor the 2nd order polynomial to give three binomial factors

$$(w + 7)(w^2 - 9)$$

A

$$(w + 7)(w - 3)(w - 3)$$

B

$$(w + 7)(w - 3)(w + 3)$$

- 20** Which answer is the same expression as this

$$t^2(t - 9) - 4(t - 9)$$

A

$$(t - 9)(t - 2)(t + 2)$$

B

$$(t - 9)(t + 2)(t + 2)$$

- 21** Use grouping to remove a factor from this order 3 polynomial

$$m^3 - 2m^2 + 9m - 18$$

A

$$(m - 2)(m^2 + 9)$$

B

$$(m + 2)(m^2 - 9)$$

- 22** Use grouping to factor this order 3 polynomial fully

$$m^3 - 2m^2 - 49m + 98$$

A

$$(m - 2)(m - 7)(m - 7)$$

B

$$(m - 2)(m + 7)(m - 7)$$

- 23** Is this factoring step correct?

$$\begin{aligned} x^3 + 3x^2 + 7x + 21 \\ = x^2(x + 3) + 7(x + 3) \end{aligned}$$

A

No

B

Yes

- 24** Is this factoring step correct?

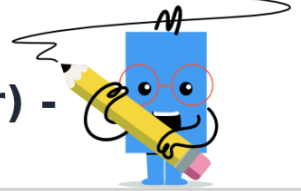
$$\begin{aligned} p^2(p + 5) + 3(p + 5) \\ = (p + 5)(p^2 + 57) \end{aligned}$$

A

No

B

Yes



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25 Is this factoring step correct?

$$(m+6)(m^2-16) \\ = (m+6)(m-4)(m+4)$$

A

Yes

B

No

26 Is this factoring step correct?

$$z^2(z-9)-16(z-9) \\ = (z-9)(z+4)(z-4)$$

A

Yes

B

No

27 Is this factoring step correct?

$$m^3+5m^2+2m+10 \\ = (m+5)(m^2+2)$$

A

Yes

B

No

28 Is this factoring step correct?

$$t^3+2t^2-16t-32 \\ = (t+2)(t-4)(t-4)$$

A

No

B

Yes