

A2.A.7: Factoring by Grouping: Factor polynomial expressions completely, using the following: common factor extraction, difference of perfect squares, quadratic formula

- 1 The expression $x^2(x+2) - (x+2)$ is equivalent to
 - 1) x^2
 - 2) $x^2 - 1$
 - 3) $x^3 + 2x^2 - x + 2$
 - 4) $(x+1)(x-1)(x+2)$
- 2 When factored completely, $x^3 + 3x^2 - 4x - 12$ equals
 - 1) $(x+2)(x-2)(x-3)$
 - 2) $(x+2)(x-2)(x+3)$
 - 3) $(x^2 - 4)(x+3)$
 - 4) $(x^2 - 4)(x-3)$
- 3 When factored completely, the expression $x^3 - 2x^2 - 9x + 18$ is equivalent to
 - 1) $(x^2 - 9)(x-2)$
 - 2) $(x-2)(x-3)(x+3)$
 - 3) $(x-2)^2(x-3)(x+3)$
 - 4) $(x-3)^2(x-2)$
- 4 When factored completely, the expression $3x^3 - 5x^2 - 48x + 80$ is equivalent to
 - 1) $(x^2 - 16)(3x - 5)$
 - 2) $(x^2 + 16)(3x - 5)(3x + 5)$
 - 3) $(x+4)(x-4)(3x - 5)$
 - 4) $(x+4)(x-4)(3x - 5)(3x - 5)$
- 5 Factor completely: $x^3 + 3x^2 + 2x + 6$
- 6 Factor completely: $x^3 - 6x^2 - 25x + 150$
- 7 Factor: $a^2 + ab + ac + bc$
- 8 Factor: $2x - xy + 2y - y^2$
- 9 Factor: $x^2 - y^2 + x - y$
- 10 Factor: $a^3 - ab + a^2 - b$
- 11 Factor: $1 + a - b - ab$
- 12 Factor: $2a - 1 - 2ab + b$
- 13 Factor: $ab - 3a - 2b + 6$
- 14 Factor: $a^2 - 3ab - a + 3b$
- 15 Factor: $6a^2 - 3ab - 2ac + bc$
- 16 Factor: $a^2 - 2ab - ac + 2bc$
- 17 Factor: $6a^2 + 9ab - 3b - 2a$
- 18 Factor: $1 - x - x^2 + x^3$
- 19 Factor: $a^2b - a^2 - ab + a$
- 20 Factor: $a^6 - a^4 - a^2 + 1$
- 21 Factor: $ab + bc - b^2 - ac$
- 22 Factor: $3bc - 4ad + 6ac - 2bd$
- 23 Factor: $2a + x - 2a^2x - ax^2$

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Answer Section

1 ANS: 4

$$x^2(x+2)-(x+2)$$

$$(x^2-1)(x+2)$$

$$(x+1)(x-1)(x+2)$$

REF: 011426a2

2 ANS: 2

$$x^3+3x^2-4x-12$$

$$x^2(x+3)-4(x+3)$$

$$(x^2-4)(x+3)$$

$$(x+2)(x-2)(x+3)$$

REF: 061214a2

3 ANS: 2

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

$$x^2(x-2)-9(x-2)$$

$$(x^2-9)(x-2)$$

$$(x+3)(x-3)(x-2)$$

REF: 011511a2

4 ANS: 3

$$3x^3-5x^2-48x+80$$

$$x^2(3x-5)-16(3x-5)$$

$$(x^2-16)(3x-5)$$

$$(x+4)(x-4)(3x-5)$$

REF: 011317a2

5 ANS:

$$x^2(x+3)+2(x+3)=(x^2+2)(x+3)$$

REF: 011629a2

6 ANS:

$$x^2(x-6)-25(x-6)$$

$$(x^2-25)(x-6)$$

$$(x+5)(x-5)(x-6)$$

REF: 061532a2

7 ANS:

$$(a+b)(a+c)$$

REF: 039404a1

8 ANS:

$$(x+y)(2-y)$$

REF: 099806a1

9 ANS:

$$(x+y+1)(x-y)$$

REF: 069802a1

10 ANS:

$$(a^2-b)(a+1)$$

REF: 060502a1

11 ANS:

$$(a+1)(1-b)$$

REF: 069303a1

12 ANS:

$$(2a-1)(1-b)$$

REF: 019604a1

13 ANS:

$$(a-2)(b-3)$$

REF: 010502a1

14 ANS:

$$(a-1)(a-3b)$$

REF: 099403a1

15 ANS:

$$(3a-c)(2a-b)$$

REF: 090502a1

16 ANS:

$$(a-c)(a-2b)$$

REF: 010602a1

17 ANS:
 $(3a - 1)(2a + 3b)$

REF: 099904al

18 ANS:
 $(1 + x)(1 - x)(1 - x)$

REF: 019806al

19 ANS:
 $a(a - 1)(b - 1)$

REF: 030501al

20 ANS:
 $(a^2 + 1)(a + 1)(a + 1)(a - 1)(a - 1)$

REF: 010003al

21 ANS:
 $(a - b)(b - c)$

REF: 089703al

22 ANS:
 $(3c - 2d)(2a + b)$

REF: 039703al

23 ANS:
 $(2a + x)(1 - ax)$

REF: 090402al