

A.A.20: Factoring Polynomials 1: Factor algebraic expressions completely, including trinomials with a lead coefficient of one (after factoring a GCF)

- 1 What are the factors of $x^2 - 10x - 24$?
 - 1) $(x - 4)(x + 6)$
 - 2) $(x - 4)(x - 6)$
 - 3) $(x - 12)(x + 2)$
 - 4) $(x + 12)(x - 2)$
- 2 What are the factors of $x^2 - 5x + 6$?
 - 1) $(x + 2)$ and $(x + 3)$
 - 2) $(x - 2)$ and $(x - 3)$
 - 3) $(x + 6)$ and $(x - 1)$
 - 4) $(x - 6)$ and $(x + 1)$
- 3 What are the factors of the expression $x^2 + x - 20$?
 - 1) $(x + 5)$ and $(x + 4)$
 - 2) $(x + 5)$ and $(x - 4)$
 - 3) $(x - 5)$ and $(x + 4)$
 - 4) $(x - 5)$ and $(x - 4)$
- 4 Factored completely, the expression $2x^2 + 10x - 12$ is equivalent to
 - 1) $2(x - 6)(x + 1)$
 - 2) $2(x + 6)(x - 1)$
 - 3) $2(x + 2)(x + 3)$
 - 4) $2(x - 2)(x - 3)$
- 5 Factored completely, the expression $2y^2 + 12y - 54$ is equivalent to
 - 1) $2(y + 9)(y - 3)$
 - 2) $2(y - 3)(y - 9)$
 - 3) $(y + 6)(2y - 9)$
 - 4) $(2y + 6)(y - 9)$
- 6 Factored completely, the expression $3x^2 - 3x - 18$ is equivalent to
 - 1) $3(x^2 - x - 6)$
 - 2) $3(x - 3)(x + 2)$
 - 3) $(3x - 9)(x + 2)$
 - 4) $(3x + 6)(x - 3)$
- 7 When factored completely, the expression $3x^2 - 9x + 6$ is equivalent to
 - 1) $(3x - 3)(x - 2)$
 - 2) $(3x + 3)(x - 2)$
 - 3) $3(x + 1)(x - 2)$
 - 4) $3(x - 1)(x - 2)$
- 8 Factored completely, the expression $3x^3 - 33x^2 + 90x$ is equivalent to
 - 1) $3x(x^2 - 33x + 90)$
 - 2) $3x(x^2 - 11x + 30)$
 - 3) $3x(x + 5)(x + 6)$
 - 4) $3x(x - 5)(x - 6)$
- 9 Factor completely: $3x^2 + 15x - 42$

10 Factor completely: $x^3 - x^2 - 6x$

11 Factor completely: $5x^3 - 20x^2 - 60x$

12 If $x + 2$ is a factor of $x^2 + bx + 10$, what is the value of b ?

13 Which expression is a factor of $x^2 + 2x - 15$?

- 1) $(x - 3)$
- 2) $(x + 3)$
- 3) $(x + 15)$
- 4) $(x - 5)$

14 Which expression is a factor of $n^2 + 3n - 54$?

- 1) $n + 6$
- 2) $n^2 + 9$
- 3) $n - 9$
- 4) $n + 9$

15 Which is a factor of $x^2 + 5x - 24$?

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

16 If $3x$ is one factor of $3x^2 - 9x$, what is the other factor?

- 1) $3x$
- 2) $x^2 - 6x$
- 3) $x - 3$
- 4) $x + 3$

17 If one factor of $56x^4y^3 - 42x^2y^6$ is $14x^2y^3$, what is the other factor?

- 1) $4x^2 - 3y^3$
- 2) $4x^2 - 3y^2$
- 3) $4x^2y - 3xy^3$
- 4) $4x^2y - 3xy^2$

18 The greatest common factor of $3m^2n + 12mn^2$ is?

- 1) $3n$
- 2) $3m$
- 3) $3mn$
- 4) $3mn^2$

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Answer Section

1 ANS: 3

$$x^2 - 10x - 24 = (x - 12)(x + 2)$$

REF: 010318a

2 ANS: 2

$$x^2 - 5x + 6 = (x - 2)(x - 3)$$

REF: 010814a

3 ANS: 2 REF: 061105ia

4 ANS: 2

$$2x^2 + 10x - 12 = 2(x^2 + 5x - 6) = 2(x + 6)(x - 1)$$

REF: 080806ia

5 ANS: 1

$$2y^2 + 12y - 54 = 2(y^2 + 6y - 27) = 2(y + 9)(y - 3)$$

REF: 060623a

6 ANS: 2 REF: 061027ia

7 ANS: 4

$$3x^2 - 9x + 6 = 3(x^2 - 3x + 2) = 3(x - 1)(x - 2)$$

REF: 061421ia

8 ANS: 4

$$3x^3 - 33x^2 + 90x = 3x(x^2 - 11x + 30) = 3x(x - 5)(x - 6)$$

REF: 061227ia

9 ANS:

$$3(x + 7)(x - 2). \quad 3x^2 + 15x - 42 = 3(x^2 + 5x - 14) = 3(x + 7)(x - 2)$$

REF: 060535a

10 ANS:

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

REF: 018912siii

11 ANS:

$$5x^3 - 20x^2 - 60x$$

$$5x(x^2 - 4x - 12)$$

$$5x(x + 2)(x - 6)$$

REF: 011332ia

12 ANS:
7

REF: 010007siii

13 ANS: 1
 $x^2 + 2x - 15 = (x + 5)(x - 3)$

REF: 010004a

14 ANS: 4
 $x^2 + 3x - 54 = (x + 9)(x - 6)$

REF: 060206a

15 ANS: 4
 $x^2 + 5x - 24 = (x + 8)(x - 3)$

REF: spring9806a

16 ANS: 3
 $3x^2 - 9x = 3x(x - 3)$

REF: 060421a

17 ANS: 1
 $56x^4y^3 - 42x^2y^6 = 14x^2y^3(4x^2 - 3y^3)$

REF: 060318a

18 ANS: 3
 $3mn(m + 4n)$

REF: 011402ia