

A.APR.A.1: Operations with Polynomials 4

- 1 Which expression is equivalent to $(x + 4)^2(x + 4)^3$?
 - 1) $(x + 4)^6$
 - 2) $(x + 4)^5$
 - 3) $(x^2 + 16)^6$
 - 4) $(x^2 + 16)^5$
- 2 The expression $\frac{1}{3}x(6x^2 - 3x + 9)$ is equivalent to
 - 1) $2x^2 - x + 3$
 - 2) $2x^2 + 3x + 3$
 - 3) $2x^3 - x^2 + 3x$
 - 4) $2x^3 + 3x^2 + 3x$
- 3 The expression $(m - 3)^2$ is equivalent to
 - 1) $m^2 + 9$
 - 2) $m^2 - 9$
 - 3) $m^2 - 6m + 9$
 - 4) $m^2 - 6m - 9$
- 4 What is the product of $(2x + 7)$ and $(x - 3)$?
 - 1) $2x^2 - 21$
 - 2) $2x^2 + x - 21$
 - 3) $2x^2 + 4x - 21$
 - 4) $2x^2 + 13x - 21$
- 5 When written in standard form, the product of $(3 + x)$ and $(2x - 5)$ is
 - 1) $3x - 2$
 - 2) $2x^2 + x - 15$
 - 3) $2x^2 - 11x - 15$
 - 4) $6x - 15 + 2x^2 - 5x$
- 6 Which expression is equivalent to $(x - 5)(2x + 7) - (x + 5)$?
 - 1) $2x^2 - 2x - 30$
 - 2) $2x^2 - 2x - 40$
 - 3) $2x^2 - 4x - 30$
 - 4) $2x^2 - 4x - 40$
- 7 Which trinomial is equivalent to $3(x - 2)^2 - 2(x - 1)$?
 - 1) $3x^2 - 2x - 10$
 - 2) $3x^2 - 2x - 14$
 - 3) $3x^2 - 14x + 10$
 - 4) $3x^2 - 14x + 14$
- 8 The product of $(x^2 + 3x + 9)$ and $(x - 3)$ is
 - 1) $x^3 - 27$
 - 2) $x^2 + 4x + 6$
 - 3) $x^3 - 6x^2 - 18x - 27$
 - 4) $-6x^4 + x^3 - 18x^2 - 27$
- 9 What is the product of $2x + 3$ and $4x^2 - 5x + 6$?
 - 1) $8x^3 - 2x^2 + 3x + 18$
 - 2) $8x^3 - 2x^2 - 3x + 18$
 - 3) $8x^3 + 2x^2 - 3x + 18$
 - 4) $8x^3 + 2x^2 + 3x + 18$
- 10 If $x = 4a^2 - a + 3$ and $y = a - 5$, then which polynomial is equivalent to the product of x and y ?
 - 1) $-17a^2 - 2a - 15$
 - 2) $-17a^2 + 8a - 15$
 - 3) $4a^3 - 21a^2 - 2a - 15$
 - 4) $4a^3 - 21a^2 + 8a - 15$

11 When $(2x - 3)^2$ is subtracted from $5x^2$, the result is

- 1) $x^2 - 12x - 9$
- 2) $x^2 - 12x + 9$
- 3) $x^2 + 12x - 9$
- 4) $x^2 + 12x + 9$

12 Which expression is *not* equivalent to

$$-4x^3 + x^2 - 6x + 8?$$

- 1) $x^2(-4x + 1) - 2(3x - 4)$
- 2) $x(-4x^2 - x + 6) + 8$
- 3) $-4x^3 + (x - 2)(x - 4)$
- 4) $-4(x^3 - 2) + x(x - 6)$

13 Fred is given a rectangular piece of paper. If the length of Fred's piece of paper is represented by $2x - 6$ and the width is represented by $3x - 5$, then the paper has a total area represented by

- 1) $5x - 11$
- 2) $6x^2 - 28x + 30$
- 3) $10x - 22$
- 4) $6x^2 - 6x - 11$

14 The length, width, and height of a rectangular box are represented by $2x$, $3x + 1$, and $5x - 6$, respectively. When the volume is expressed as a polynomial in standard form, what is the coefficient of the 2nd term?

- 1) -13
- 2) 13
- 3) -26
- 4) 26

15 Given:

$$A = x + 5$$

$$B = x^2 - 18$$

Express $A^2 + B$ in standard form.

16 Express the product of $2x^2 + 7x - 10$ and $x + 5$ in standard form.

17 Write the expression $5x + 4x^2(2x + 7) - 6x^2 - 9x$ as a polynomial in standard form.

18 If the difference $(3x^2 - 2x + 5) - (x^2 + 3x - 2)$ is multiplied by $\frac{1}{2}x^2$, what is the result, written in standard form?

19 Express $(3x - 4)(x + 7) - \frac{1}{4}x^2$ as a trinomial in standard form.

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Answer Section

1 ANS: 2 REF: 012309ai

2 ANS: 3 REF: 082206ai

3 ANS: 3 REF: 062217ai

4 ANS: 2

$$(2x + 7)(x - 3) = 2x^2 - 6x + 7x - 21 = 2x^2 + x - 21$$

REF: 082308ai

5 ANS: 2

(d) is the product, but not written in standard form.

REF: 062108ai

6 ANS: 4

$$2x^2 + 7x - 10x - 35 - x - 5 = 2x^2 - 4x - 40$$

REF: 062419ai

7 ANS: 4

$$3(x^2 - 4x + 4) - 2x + 2 = 3x^2 - 12x + 12 - 2x + 2 = 3x^2 - 14x + 14$$

REF: 081524ai

8 ANS: 1

$$(x^2 + 3x + 9)(x - 3) = x^3 - 3x^2 + 3x^2 - 9x + 9x - 27 = x^3 - 27$$

REF: 012415ai

9 ANS: 3

$$(2x + 3)(4x^2 - 5x + 6) = 8x^3 - 10x^2 + 12x + 12x^2 - 15x + 18 = 8x^3 + 2x^2 - 3x + 18$$

REF: 081612ai

10 ANS: 4

$$(4a^2 - a + 3)(a - 5) = 4a^3 - 20a^2 - a^2 + 5a + 3a - 15 = 4a^3 - 21a^2 + 8a - 15$$

REF: 082417ai

11 ANS: 3

$$5x^2 - (4x^2 - 12x + 9) = x^2 + 12x - 9$$

REF: 011610ai

12 ANS: 2

$$x(-4x^2 - x + 6) + 8 = -4x^3 - x^2 + 6x + 8$$

REF: 012016ai

13 ANS: 2

REF: 011510ai

14 ANS: 3

$$(6x^2 + 2x)(5x - 6) = 30x^3 - 36x^2 + 10x^2 - 12x = 30x^3 - 26x^2 - 12x$$

REF: 081824ai

15 ANS:

$$(x + 5)^2 + x^2 - 18 = x^2 + 10x + 25 + x^2 - 18 = 2x^2 + 10x + 7$$

REF: 062329ai

16 ANS:

$$(2x^2 + 7x - 10)(x + 5)$$

$$2x^3 + 7x^2 - 10x + 10x^2 + 35x - 50$$

$$2x^3 + 17x^2 + 25x - 50$$

REF: 081428ai

17 ANS:

$$5x + 4x^2(2x + 7) - 6x^2 - 9x = -4x + 8x^3 + 28x^2 - 6x^2 = 8x^3 + 22x^2 - 4x$$

REF: 081731ai

18 ANS:

$$(3x^2 - 2x + 5) - (x^2 + 3x - 2) = 2x^2 - 5x + 7$$

$$\frac{1}{2}x^2(2x^2 - 5x + 7) = x^4 - \frac{5}{2}x^3 + \frac{7}{2}x^2$$

REF: 061528ai

19 ANS:

$$3x^2 + 21x - 4x - 28 - \frac{1}{4}x^2 = 2.75x^2 + 17x - 28$$

REF: 012028ai