

**A2.N.3: Operations with Polynomials: Perform arithmetic operations with polynomial expressions containing rational coefficients**

- 1 When  $x^2 + 3x - 4$  is subtracted from  $x^3 + 3x^2 - 2x$ , the difference is

- 1)  $x^3 + 2x^2 - 5x + 4$
- 2)  $x^3 + 2x^2 + x - 4$
- 3)  $-x^3 + 4x^2 + x - 4$
- 4)  $-x^3 - 2x^2 + 5x + 4$

- 2 When  $\frac{3}{2}x^2 - \frac{1}{4}x - 4$  is subtracted from  $\frac{5}{2}x^2 - \frac{3}{4}x + 1$ , the difference is

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

- 3 When  $\frac{7}{8}x^2 - \frac{3}{4}x$  is subtracted from  $\frac{5}{8}x^2 - \frac{1}{4}x + 2$ , the difference is

- 1)  $-\frac{1}{4}x^2 - x + 2$
- 2)  $\frac{1}{4}x^2 - x + 2$
- 3)  $-\frac{1}{4}x^2 + \frac{1}{2}x + 2$
- 4)  $\frac{1}{4}x^2 - \frac{1}{2}x - 2$

- 4 What is the product of  $\left(\frac{x}{4} - \frac{1}{3}\right)$  and  $\left(\frac{x}{4} + \frac{1}{3}\right)$ ?

- 1)  $\frac{x^2}{8} - \frac{1}{9}$
- 2)  $\frac{x^2}{16} - \frac{1}{9}$
- 3)  $\frac{x^2}{8} - \frac{x}{6} - \frac{1}{9}$
- 4)  $\frac{x^2}{16} - \frac{x}{6} - \frac{1}{9}$

- 5 What is the product of  $\left(\frac{2}{5}x - \frac{3}{4}y^2\right)$  and

$$\left(\frac{2}{5}x + \frac{3}{4}y^2\right)?$$

- 1)  $\frac{4}{25}x^2 - \frac{9}{16}y^4$
- 2)  $\frac{4}{25}x - \frac{9}{16}y^2$
- 3)  $\frac{2}{5}x^2 - \frac{3}{4}y^4$
- 4)  $\frac{4}{5}x$

- 6 The expression  $\left(\frac{3}{2}x + 1\right)\left(\frac{3}{2}x - 1\right) - \left(\frac{3}{2}x - 1\right)^2$  is equivalent to

- 1) 0
- 2)  $-3x$
- 3)  $\frac{3}{4}x - 2$
- 4)  $3x - 2$

- 7 Find the difference when  $\frac{4}{3}x^3 - \frac{5}{8}x^2 + \frac{7}{9}x$  is subtracted from  $2x^3 + \frac{3}{4}x^2 - \frac{2}{9}$ .

- 8 Express  $\left(\frac{2}{3}x - 1\right)^2$  as a trinomial.

- 9 Express the product of  $\left(\frac{1}{2}y^2 - \frac{1}{3}y\right)$  and  $\left(12y + \frac{3}{5}\right)$  as a trinomial.

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#### Answer Section

1 ANS: 1 REF: 011314a2

2 ANS: 2 REF: 011114a2

3 ANS: 3 REF: 061515a2

4 ANS: 2

The binomials are conjugates, so use FL.

REF: 011206a2

5 ANS: 1

The binomials are conjugates, so use FL.

REF: 061201a2

6 ANS: 4

$$\left(\frac{3}{2}x - 1\right) \left[ \left(\frac{3}{2}x + 1\right) - \left(\frac{3}{2}x - 1\right) \right] = \left(\frac{3}{2}x - 1\right)(2) = 3x - 2$$

REF: 011524a2

7 ANS:

$$\frac{2}{3}x^3 + \frac{11}{8}x^2 - \frac{7}{9}x - \frac{2}{9}$$

REF: 011635a2

8 ANS:

$$\frac{4}{9}x^2 - \frac{4}{3}x + 1. \left(\frac{2}{3}x - 1\right)^2 = \left(\frac{2}{3}x - 1\right)\left(\frac{2}{3}x - 1\right) = \frac{4}{9}x^2 - \frac{2}{3}x - \frac{2}{3}x + 1 = \frac{4}{9}x^2 - \frac{4}{3}x + 1$$

REF: 081034a2

9 ANS:

$$6y^3 - \frac{37}{10}y^2 - \frac{1}{5}y. \left(\frac{1}{2}y^2 - \frac{1}{3}y\right)\left(12y + \frac{3}{5}\right) = 6y^3 + \frac{3}{10}y^2 - 4y^2 - \frac{1}{5}y = 6y^3 - \frac{37}{10}y^2 - \frac{1}{5}y$$

REF: 061128a2