

Operations with polynomials answers and explanations

Answers

1. C 2. B 3. B 4. C 5. A 6. D 7. C 8. C 9. B 10. A

Answer Explanations

- 1. C.** In this problem, we are given two polynomial expressions and asked to find the sum. Before we can add these polynomial expressions together, we need to distribute the extraneous factors outside the parameters.
 $5b(b-6) \rightarrow 5b^2 - 30b$ and $5(b-3) \rightarrow 5b - 15$. Now we can add the polynomials
 $(5b^2 - 30b) + (5b - 15) \rightarrow 5b^2 - 25b - 15$. Since all these terms have a factor of 5, we can simplify our polynomial expression $5(b^2 - 5b - 3)$, which makes answer choice (C) correct.
- 2. B.** In this problem, we are given two polynomial expressions and asked to find an equivalent expression to the sum of the polynomials. Remember, it's important to keep track of our exponents when combining like terms. $(4x^3 - 6x) + (5x - 3x^3) \rightarrow (4x^3 - 3x^3) + (-6x + 5x) \rightarrow x^3 - x$. Since both terms have a factor of x , we can simplify our polynomial expression $x(x^2 - 1) \rightarrow x(x-1)(x+1)$, which makes answer choice (B) correct.
- 3. B.** In this problem, we are given two polynomial expressions and asked to find an equivalent expression to the difference of the polynomials. First, we must distribute the negative
 $(5c - 7c^2 + c^3) - (3c^2 + 8c - 4c^3) \rightarrow (5c - 7c^2 + c^3) + (-3c^2 - 8c + 4c^3)$. Remember, it's important to keep track of our exponents when combining like-terms. $(c^3 + 4c^3) + (-7c^2 - 3c^2) + (5c - 8c) \rightarrow 5c^3 - 10c^2 - 3c$, which makes answer choice (B) correct.
- 4. C.** In this problem, we are given two polynomial expressions and asked to find an equivalent expression to the difference of the polynomials. First, we must distribute the negative
 $(9r^4 + 7r^2 + 3r) - (9r^4 + 7r^2 + 1) \rightarrow (9r^4 + 7r^2 + 3r) + (-9r^4 - 7r^2 - 1)$. Remember, it's important to keep track of our exponents when combining like-terms. $(9r^4 - 9r^4) + (7r^2 - 7r^2) + (3r - 1) \rightarrow 3r - 1$, which makes answer choice (C) correct.
- 5. A.** In this problem, we are given two polynomial expressions and asked to find the product of these two factors. Here, we will utilize the FOIL method to find the product of our two polynomials.
 $(x-7)(x+5) = x^2 - 7x + 5x - 35 \rightarrow x^2 - 2x - 35$, which makes answer choice (A) correct.
- 6. D.** In this problem, we are given two polynomial expressions and asked to find an equivalent expression to the product of these two factors. First, we must distribute the negative
 $-(x-3)(x-5) \rightarrow (-x+3)(x-5)$. Now that we've distributed the negative, we can utilize the FOIL method to determine the product of these two factors
 $(-x+3)(x-5) \rightarrow -x^2 + 5x + 3x - 15 \rightarrow -x^2 + 8x - 15$, which makes answer choice (D) correct.
- 7. C.** In this problem, we are given two polynomial expressions and asked to find an equivalent expression to the difference of the polynomials. First, we must distribute the extraneous values outside of the parameters.
 $(5y + 9y^2 + 4) - 4(2y^2 + y + 1) \rightarrow (5y + 9y^2 + 4) + (-8y^2 - 4y - 4)$. Remember, it's important to keep track of our exponents when combining like terms. $(9y^2 - 8y^2) + (5y - 4y) + (4 - 4) \rightarrow y^2 + y$, which

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makes answer choice (C) correct.

8. **C.** In this problem, we are given two linear functions and asked to find an equivalent expression to the product of the two functions. Here, we will utilize the FOIL method to find the product of these two functions. $f(x) \times g(x) = (3x - 4)(5x - 3) \rightarrow 15x^2 - 9x - 20x + 12 \rightarrow 15x^2 - 29x + 12$, which makes answer choice (C) correct.

9. **B.** In this problem, we are given an expression and asked to find an equivalent expression to the difference between the two polynomial expressions. First, we must distribute the negative

$$(5v + 3) - \left(\frac{1}{2}v - \frac{1}{3}\right) \rightarrow (5v + 3) + \left(-\frac{1}{2}v + \frac{1}{3}\right). \text{ Now, we can combine like terms.}$$

$$(5v + 3) + \left(-\frac{1}{2}v + \frac{1}{3}\right) \rightarrow \left(\frac{10}{2}v - \frac{1}{2}v\right) + \left(\frac{9}{3} + \frac{1}{3}\right) \rightarrow \frac{9}{2}v + \frac{10}{3}, \text{ which makes answer choice (B) correct.}$$

10. **A.** In this problem, we are given two linear functions and asked to find an equivalent expression to

$$f(x) - 5g(x). \text{ Given } f(x) = 9 - \frac{x}{3} \text{ and } g(x) = \frac{4}{5} - \frac{x}{15}, \text{ we can substitute and solve for the equivalent}$$

$$\text{expression. } \left(9 - \frac{x}{3}\right) - 5\left(\frac{4}{5} - \frac{x}{15}\right) \rightarrow \left(9 - \frac{x}{3}\right) + \left(-4 + \frac{x}{3}\right) \rightarrow (9 - 4) + \left(\frac{x}{3} - \frac{x}{3}\right) \rightarrow 5, \text{ which makes answer choice (A) correct.}$$