

Question ID 93931b53

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 93931b53

Which expression is equivalent to $19(x^2 - 7)$?

- A. $19x^2 - 133$
- B. $19x^2 - 26$
- C. $19x^2 - 7$
- D. $19x^2 + 12$

ID: 93931b53 Answer

Correct Answer: A

Rationale

Choice A is correct. The expression $19x^2 - 7$ can be rewritten as $19x^2 - 197$, which is equivalent to $19x^2 - 133$.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID c36ff321

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: c36ff321

Which expression is equivalent to $x^2 + 3x - 40$?

- A. $(x - 4)(x + 10)$
- B. $(x - 5)(x + 8)$
- C. $(x - 8)(x + 5)$
- D. $(x - 10)(x + 4)$

ID: c36ff321 Answer

Correct Answer: B

Rationale

Choice B is correct. The given expression may be rewritten as $x^2 + 8x - 5x - 40$. Since the first two terms of this expression have a common factor of x and the last two terms of this expression have a common factor of -5 , this expression may be rewritten as $xx + x8 - 5x - 58$, or $xx + 8 - 5x + 8$. Since each term of this expression has a common factor of $x + 8$, it may be rewritten as $x - 5x + 8$.

Alternate approach: An expression of the form $x^2 + bx + c$, where b and c are constants, can be factored if there are two values that add to give b and multiply to give c . In the given expression, $b = 3$ and $c = -40$. The values of -5 and 8 add to give 3 and multiply to give -40 , so the expression can be factored as $x - 5x + 8$.

Choice A is incorrect. This expression is equivalent to $x^2 + 6x - 40$, not $x^2 + 3x - 40$.

Choice C is incorrect. This expression is equivalent to $x^2 - 3x - 40$, not $x^2 + 3x - 40$.

Choice D is incorrect. This expression is equivalent to $x^2 - 6x - 40$, not $x^2 + 3x - 40$.

Question Difficulty: Easy

Question ID e1d81de8

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: e1d81de8

Which expression is equivalent to $5x^5 - 6x^4 + 8x^3$?

- A. $x^4(5x - 6)$
- B. $x^3(5x^2 - 6x + 8)$
- C. $8x^3(5x^2 - 6x + 1)$
- D. $6x^5(-6x^4 + 8x^3 + 1)$

ID: e1d81de8 Answer

Correct Answer: B

Rationale

Choice B is correct. Since x^3 is a common factor of each term in the given expression, the expression can be rewritten as $x^35x^2 - 6x + 8$.

Choice A is incorrect. This expression is equivalent to $5x^5 - 6x^4$.

Choice C is incorrect. This expression is equivalent to $40x^5 - 48x^4 + 8x^3$.

Choice D is incorrect. This expression is equivalent to $-36x^9 + 48x^8 + 6x^5$.

Question Difficulty: Easy

Question ID 94549745

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 94549745

Which expression is equivalent to $20w - (4w + 3w)$?

- A. $10w$
- B. $13w$
- C. $19w$
- D. $21w$

ID: 94549745 Answer

Correct Answer: B

Rationale

Choice B is correct. Combining like terms inside the parentheses of the given expression, $20w - 4w + 3w$, yields $20w - 7w$. Combining like terms in this resulting expression yields $13w$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 16b1a141

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 16b1a141

Which expression is equivalent to $34x + 34y$?

- A. $34xy$
- B. $34(x + y)$
- C. $68y$
- D. $68x$

ID: 16b1a141 Answer

Correct Answer: B

Rationale

Choice B is correct. Since 34 is a common factor of each term in the given expression, the expression can be rewritten as $34x + y$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect. This expression is equivalent to $34y + 34y$.

Choice D is incorrect. This expression is equivalent to $34x + 34x$.

Question Difficulty: Easy

Question ID 60aca572

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 60aca572

Which expression is equivalent to $8 + d^2 + 3$?

- A. $d^2 + 24$
- B. $d^2 + 11$
- C. $d^2 + 5$
- D. $d^2 - 11$

ID: 60aca572 Answer

Correct Answer: B

Rationale

Choice B is correct. The given expression can be rewritten as $d^2 + 8 + 3$. Adding 8 and 3 in this expression yields $d^2 + 11$.

Choice A is incorrect. This expression is equivalent to $d^2 + 83$.

Choice C is incorrect. This expression is equivalent to $8 + d^2 - 3$.

Choice D is incorrect. This expression is equivalent to $-8 + d^2 - 3$.

Question Difficulty: Easy

Question ID 34050917

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 34050917

Which expression is equivalent to $9x^2 + 7x^2 + 9x$?

- A. $63x^4 + 9x$
- B. $9x^2 + 16x$
- C. $25x^5$
- D. $16x^2 + 9x$

ID: 34050917 Answer

Correct Answer: D

Rationale

Choice D is correct. In the given expression, the first two terms, $9x^2$ and $7x^2$, are like terms. Combining these like terms yields $9x^2 + 7x^2$, or $16x^2$. It follows that the expression $9x^2 + 7x^2 + 9x$ is equivalent to $16x^2 + 9x$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 782fbe68

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 782fbe68

Which expression is equivalent to $50x^2 + 5x^2$?

- A. $250x^2$
- B. $10x^2$
- C. $45x^2$
- D. $55x^2$

ID: 782fbe68 Answer

Correct Answer: D

Rationale

Choice D is correct. The given expression shows addition of two like terms. Therefore, the given expression is equivalent to $50 + 5x^2$, or $55x^2$.

Choice A is incorrect. This expression is equivalent to $505x^2$, not $50 + 5x^2$.

Choice B is incorrect. This expression is equivalent to $\frac{50}{5}x^2$, not $50 + 5x^2$.

Choice C is incorrect. This expression is equivalent to $50 - 5x^2$, not $50 + 5x^2$.

Question Difficulty: Easy

Question ID 5b5a9043

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 5b5a9043

Which expression is equivalent to $(2x^2 + x - 9) + (x^2 + 6x + 1)$?

- A. $2x^2 + 7x + 10$
- B. $2x^2 + 6x - 8$
- C. $3x^2 + 7x - 10$
- D. $3x^2 + 7x - 8$

ID: 5b5a9043 Answer

Correct Answer: D

Rationale

Choice D is correct. The given expression is equivalent to $2x^2 + x + -9 + x^2 + 6x + 1$, which can be rewritten as $2x^2 + x^2 + x + 6x + -9 + 1$. Adding like terms in this expression yields $3x^2 + 7x + -8$, or $3x^2 + 7x - 8$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 97fc27f8

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 97fc27f8

Which expression is equivalent to $(8yz)(y)(7z)$?

- A. $56y^2z^2$
- B. $56y^2z$
- C. $56yz$
- D. $16yz$

ID: 97fc27f8 Answer

Correct Answer: A

Rationale

Choice A is correct. The given expression can be rewritten as $8 \cdot 7y \cdot yz \cdot z$, which is equivalent to $56y^2z^2$, or $56y^2z^2$.

Choice B is incorrect. This expression is equivalent to $8yzy7$.

Choice C is incorrect. This expression is equivalent to $8zy7$.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 15b1df49

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 15b1df49

Which expression is equivalent to $256w^2 - 676$?

- A. $(16w - 26)(16w - 26)$
- B. $(8w - 13)(8w + 13)$
- C. $(8w - 13)(8w - 13)$
- D. $(16w - 26)(16w + 26)$

ID: 15b1df49 Answer

Correct Answer: D

Rationale

Choice D is correct. The given expression follows the difference of two squares pattern, $x^2 - y^2$, which factors as $x - yx + y$. Therefore, the expression $256w^2 - 676$ can be written as $16w^2 - 26^2$, or $16w16w - 2626$, which factors as $16w - 2616w + 26$.

Choice A is incorrect. This expression is equivalent to $256w^2 - 832w + 676$.

Choice B is incorrect. This expression is equivalent to $64w^2 - 169$.

Choice C is incorrect. This expression is equivalent to $64w^2 - 208w + 169$.

Question Difficulty: Easy

Question ID 2b85b3c1

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 2b85b3c1

Which expression is equivalent to $11x^3 - 5x^3$?

- A. $16x^3$
- B. $6x^3$
- C. $6x^6$
- D. $16x^6$

ID: 2b85b3c1 Answer

Correct Answer: B

Rationale

Choice B is correct. The given expression can be rewritten as $11x^3 + -5x^3$. Since the two terms of this expression are both constant multiples of x^3 , they are like terms and can, therefore, be combined through addition. Adding like terms in the expression $11x^3 + -5x^3$ yields $6x^3$.

Choice A is incorrect. This is equivalent to $11x^3 + 5x^3$, not $11x^3 - 5x^3$.

Choice C is incorrect. This is equivalent to $11x^6 - 5x^6$, not $11x^3 - 5x^3$.

Choice D is incorrect. This is equivalent to $11x^6 + 5x^6$, not $11x^3 - 5x^3$.

Question Difficulty: Easy

Question ID 2272fa21

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 2272fa21

Which expression is equivalent to $9x + 6x + 2y + 3y$?

- A. $3x + 5y$
- B. $6x + 8y$
- C. $12x + 8y$
- D. $15x + 5y$

ID: 2272fa21 Answer

Correct Answer: D

Rationale

Choice D is correct. Combining like terms in the given expression yields $9x + 6x + 2y + 3y$, or $15x + 5y$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID b8be51aa

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: b8be51aa

Which expression is equivalent to $5x^2 - 50xy^2$?

- A. $5x(x - 10y^2)$
- B. $5x(x - 50y^2)$
- C. $5x^2(10xy^2)$
- D. $5x^2(50xy^2)$

ID: b8be51aa Answer

Correct Answer: A

Rationale

Choice A is correct. Since each term of the given expression has a factor of $5x$, it can be rewritten as $5xx - 5x10y^2$, or $5xx - 10y^2$.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 6a30c880

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: 6a30c880

Which expression is equivalent to $16x^3y^2 + 14xy$?

- A. $2xy(8xy + 7)$
- B. $2xy(8x^2y + 7)$
- C. $14xy(2x^2y + 1)$
- D. $14xy(8x^2y + 1)$

ID: 6a30c880 Answer

Correct Answer: B

Rationale

Choice B is correct. Since $2xy$ is a common factor of each term in the given expression, the expression can be rewritten as $2xy8x^2y + 7$.

Choice A is incorrect. This expression is equivalent to $16x^2y^2 + 14xy$.

Choice C is incorrect. This expression is equivalent to $28x^3y^2 + 14xy$.

Choice D is incorrect. This expression is equivalent to $112x^3y^2 + 14xy$.

Question Difficulty: Easy

Question ID db59f2eb

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: db59f2eb

Which expression is equivalent to $12x^3 - 5x^3$?

- A. $7x^6$
- B. $17x^3$
- C. $7x^3$
- D. $17x^6$

ID: db59f2eb Answer

Correct Answer: C

Rationale

Choice C is correct. The given expression shows subtraction of two like terms. The two terms can be subtracted as follows:
 $12x^3 - 5x^3 = 12 - 5x^3$, or $7x^3$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect. This is the result of adding, not subtracting, the two like terms.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID dc7115cf

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: dc7115cf

Which expression is equivalent to $9x^2 + 5x$?

- A. $x(9x + 5)$
- B. $5x(9x + 1)$
- C. $9x(x + 5)$
- D. $x^2(9x + 5)$

ID: dc7115cf Answer

Correct Answer: A

Rationale

Choice A is correct. Since x is a factor of each term in the given expression, the expression is equivalent to $x9x + x5$, or $x9x + 5$.

Choice B is incorrect. This expression is equivalent to $45x^2 + 5x$, not $9x^2 + 5x$.

Choice C is incorrect. This expression is equivalent to $9x^2 + 45x$, not $9x^2 + 5x$.

Choice D is incorrect. This expression is equivalent to $9x^3 + 5x^2$, not $9x^2 + 5x$.

Question Difficulty: Easy

Question ID e7d33124

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Advanced Math	Equivalent expressions	<div><div></div><div></div><div></div></div>

ID: e7d33124

Which expression is equivalent to $12x + 27$?

- A. $12(9x + 1)$
- B. $27(12x + 1)$
- C. $3(4x + 9)$
- D. $3(9x + 24)$

ID: e7d33124 Answer

Correct Answer: C

Rationale

Choice C is correct. Each term in the given expression, $12x + 27$, has a common factor of 3. Therefore, the expression can be rewritten as $3(4x + 9)$, or $34x + 9$. Thus, the expression $34x + 9$ is equivalent to the given expression.

Choice A is incorrect. This expression is equivalent to $108x + 12$, not $12x + 27$.

Choice B is incorrect. This expression is equivalent to $324x + 27$, not $12x + 27$.

Choice D is incorrect. This expression is equivalent to $27x + 72$, not $12x + 27$.

Question Difficulty: Easy