Question ID 60a9d40e

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 60a9d40e

What value of p satisfies the equation $2p + 275 = 325$?

A. 5

B. 25

C. 48

D. 300

ID: 60a9d40e Answer

Correct Answer: B

Rationale

Choice B is correct. Subtracting 275 from both sides of the given equation yields $2p = 50$. Dividing both sides of this equation by 2 yields $p = 25$. Therefore, the value of p that satisfies the given equation is 25.

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

Choice C is incorrect. This is the value of p that satisfies the equation $(2 + p) + 275 = 325$, not $2p + 275 = 325$.

Choice D is incorrect. This is the value of p that satisfies the equation $2p - 275 = 325$, not $2p + 275 = 325$.

Question Difficulty: Easy

Question ID a906080d

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: a906080d

$$(p+3)+8=10$$

What value of p is the solution to the given equation?

A. -1

B. 5

C. 15

D. 21

ID: a906080d Answer

Correct Answer: A

Rationale

Choice A is correct. Subtracting 8 from both sides of the given equation yields $p+3=2$. Subtracting 3 from both sides of this equation yields $p=-1$.

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 b5e310fe

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: b5e310fe

Henry receives a $\$60.00$ gift card to pay for movies online. He uses his gift card to buy 3 movies for $\$7.50$ each. If he spends the rest of his gift card balance on renting movies for $\$1.50$ each, how many movies can Henry rent?

A. 10

B. 25

C. 35

D. 40

ID: b5e310fe Answer

Correct Answer: B

Rationale

Choice B is correct. It's given that Henry uses his $\$60.00$ gift card to buy 3 movies for $\$7.50$ each. Therefore, Henry spends $3(\$7.50)$, or $\$22.50$, of his $\$60.00$ gift card to buy 3 movies. After buying 3 movies with his $\$60.00$ gift card, Henry has a gift card balance of $\$60.00 - \$22.50$, or $\$37.50$. It's also given that Henry spends the rest of his gift card balance on renting movies for $\$1.50$ each. Therefore, Henry can rent $\frac{\$37.50}{\$1.50}$, or 25, movies.

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 0f723f63

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 0f723f63

A principal used a total of 25 flags that were either blue or yellow for field day. The principal used 20 blue flags. How many yellow flags were used?

A. 5

B. 20

C. 25

D. 30

ID: 0f723f63 Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that a principal used a total of 25 blue flags and yellow flags. It's also given that of the 25 flags used, 20 flags were blue. Subtracting the number of blue flags used from the total number of flags used results in the number of yellow flags used. It follows that the number of yellow flags used is $25 - 20$, or 5.

Choice B is incorrect. This is the number of blue flags used.

Choice C is incorrect. This is the total number of flags used.

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

Question Difficulty: Easy

Question ID d984e195

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: d984e195

If $x = 7$, what is the value of $x + 20$?

A. 13

B. 20

C. 27

D. 34

ID: d984e195 Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that $x = 7$. Substituting 7 for x into the given expression $x + 20$ yields $7 + 20$, which is equivalent to 27.

Choice A is incorrect. This is the value of $x + 6$.

Choice B is incorrect. This is the value of $x + 13$.

Choice D is incorrect. This is the value of $x + 27$.

Question Difficulty: Easy

Question ID c1991895

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: c1991895

If $3x = 30$, what is the value of $3x - 12$?

A. -2

B. 18

C. 22

D. 42

ID: c1991895 Answer

Correct Answer: B

Rationale

Choice B is correct. Subtracting 12 from each side of the given equation yields $3x - 12 = 30 - 12$, or $3x - 12 = 18$. Therefore, the value of $3x - 12$ is 18.

Choice A is incorrect. This is the value of $x - 12$, not $3x - 12$.

Choice C is incorrect. This is the value of $x + 12$, not $3x - 12$.

Choice D is incorrect. This is the value of $3x + 12$, not $3x - 12$.

Question Difficulty: Easy

Question ID b41ed609

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: b41ed609

What value of p satisfies the equation $5p + 180 = 250$?

A. 14

B. 65

C. 86

D. 250

ID: b41ed609 Answer

Correct Answer: A

Rationale

Choice A is correct. Subtracting 180 from both sides of the given equation yields $5p = 70$. Dividing both sides of this equation by 5 yields $p = 14$. Therefore, the value of p that satisfies the equation $5p + 180 = 250$ is 14.

Choice B is incorrect. This value of p satisfies the equation $5p + 180 = 505$.

Choice C is incorrect. This value of p satisfies the equation $5p + 180 = 610$.

Choice D is incorrect. This value of p satisfies the equation $5p + 180 = 1{,}430$.

Question Difficulty: Easy

Question ID 1cc3f5be

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 1cc3f5be

$$w + 7 = 357$$

What value of w is the solution to the given equation?

A. 51

B. 350

C. 364

D. $3{,}577$

ID: 1cc3f5be Answer

Correct Answer: B

Rationale

Choice B is correct. Subtracting 7 from each side of the given equation yields $w = 350$. Therefore, the value of w that is the solution to the given equation is 350.

Choice A is incorrect. This is the value of w that is the solution to the equation $7w = 357$, not $w + 7 = 357$.

Choice C is incorrect. This is the value of w that is the solution to the equation $w - 7 = 357$, not $w + 7 = 357$.

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

Question Difficulty: Easy

Question ID 350dc0c3

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 350dc0c3

$$8x = 88$$

What value of x is the solution to the given equation?

A. 11

B. 80

C. 96

D. 704

ID: 350dc0c3 Answer

Correct Answer: A

Rationale

Choice A is correct. Dividing both sides of the given equation by 8 yields $x = 11$. Therefore, 11 is the solution to the given equation.

Choice B is incorrect. This is the solution to the equation $x + 8 = 88$.

Choice C is incorrect. This is the solution to the equation $x - 8 = 88$.

Choice D is incorrect. This is the solution to the equation $\frac{x}{8} = 88$.

Question Difficulty: Easy

Question ID 7245c960

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 7245c960

$$16x + 30 = 190$$

Which equation has the same solution as the given equation?

A. $16x = 30$

B. $16x = 130$

C. $16x = 160$

D. $16x = 190$

ID: 7245c960 Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that $16x + 30 = 190$. Subtracting 30 from each side of this equation yields $16x = 160$. Therefore, the equation $16x = 160$ is equivalent to the given equation and has the same solution.

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

Question Difficulty: Easy

Question ID 8d8919cb

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 8d8919cb

On the first day of a semester, a film club has 90 members. Each day after the first day of the semester, 10 new members join the film club. If no members leave the film club, how many total members will the film club have 4 days after the first day of the semester?

A. 400

B. 130

C. 94

D. 90

ID: 8d8919cb Answer

Correct Answer: B

Rationale

Choice B is correct. It's given that the film club has 90 members on the first day of a semester, and 10 new members join the film club each day after the first day of the semester. This means that after 4 days, 4×10, or 40, new members will have joined the club. Adding 40 members to the original 90 club members yields 130 members. Thus, the film club will have 130 total members 4 days after the first day of the semester.

Choice A is incorrect. This is the number of members that will have joined the film club 4 days after the first day of the semester if 100 new members, not 10, join the film club each day.

Choice C is incorrect. This is the number of members the film club will have 4 days after the first day of the semester if 1 new member, not 10, joins the film club each day.

Choice D is incorrect. This is the number of members the film club has on the first day of the semester.

Question Difficulty: Easy

Question ID ad3ae7d0

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: ad3ae7d0

A total of 165 people contributed to a charity event as either a donor or a volunteer. 130 people contributed as a donor. How many people contributed as a volunteer?

A. 35

B. 130

C. 165

D. 330

ID: ad3ae7d0 Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that a total of 165 people contributed to a charity event as either a donor or a volunteer. It's also given that 130 people contributed as a donor. It follows that $165 - 130$, or 35, people contributed as a volunteer.

Choice B is incorrect. This is the number of people who contributed as a donor, not a volunteer.

Choice C is incorrect. This is the total number of people who contributed as either a donor or a volunteer, not the number of people who contributed as a volunteer.

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

Question Difficulty: Easy

Question ID 7483c042

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 7483c042

If $5x = 20$, what is the value of $15x$?

A. 7

B. 12

C. 23

D. 60

ID: 7483c042 Answer

Correct Answer: D

Rationale

Choice D is correct. It's given that $5x = 20$. Multiplying both sides of this equation by 3 yields $15x = 60$. Therefore, the value of $15x$ is 60.

Choice A is incorrect and may result from conceptual errors.

Choice B is incorrect and may result from conceptual errors.

Choice C is incorrect and may result from conceptual errors.

Question Difficulty: Easy

Question ID 9316cf35

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 9316cf35

Lorenzo purchased a box of cereal and some strawberries at the grocery store. Lorenzo paid $\$2$ for the box of cereal and $\$1.90$ per pound for the strawberries. If Lorenzo paid a total of $\$9.60$ for the box of cereal and the strawberries, which of the following equations can be used to find p, the number of pounds of strawberries Lorenzo purchased? (Assume there is no sales tax.)

A. $1.90p + 2 = 9.60$

B. $1.90p - 2 = 9.60$

C. $1.90 + 2p = 9.60$

D. $1.90 - 2p = 9.60$

ID: 9316cf35 Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that p represents the number of pounds of strawberries Lorenzo purchased and Lorenzo paid $\$1.90$ per pound for the strawberries. It follows that the total amount, in dollars, Lorenzo paid for strawberries can be represented by $1.90p$. It's given that Lorenzo paid $\$2$ for the box of cereal. If Lorenzo paid a total of $\$9.60$ for the box of cereal and strawberries, it follows that the equation $1.90p + 2 = 9.60$ can be used to find p.

Choice B is incorrect and may result from conceptual errors.

Choice C is incorrect and may result from conceptual errors.

Choice D is incorrect and may result from conceptual errors.

Question Difficulty: Easy

Question ID 46c628f8

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 46c628f8

$$4x + 5 = 165$$

What is the solution to the given equation?

ID: 46c628f8 Answer

Correct Answer: 40

Rationale

The correct answer is 40. Subtracting 5 from both sides of the given equation yields $4x = 160$. Dividing both sides of this equation by 4 yields $x = 40$. Therefore, the solution to the given equation is 40.

Question Difficulty: Easy

Question ID 86188497

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 86188497

If $7x = 28$, what is the value of $8x$?

A. 21

B. 32

C. 168

D. 224

ID: 86188497 Answer

Correct Answer: B

Rationale

Choice B is correct. Dividing both sides of the given equation $7x = 28$ by 7 yields $x = 4$. Substituting 4 for x in the expression $8x$ yields $8(4)$, which is equivalent to 32.

Choice A is incorrect. This is the value of $\frac{21}{4}x$.

Choice C is incorrect. This is the value of $42x$.

Choice D is incorrect. This is the value of $56x$.

Question Difficulty: Easy

Question ID 0b394bc8

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 0b394bc8

If $x = 40$, what is the value of $x + 6$?

A. 34

B. 40

C. 46

D. 64

ID: 0b394bc8 Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that $x = 40$. Adding 6 to both sides of this equation yields $x + 6 = 40 + 6$, or $x + 6 = 46$. Therefore, the value of $x + 6$ is 46.

Choice A is incorrect. This is the value of $x - 6$, not $x + 6$.

Choice B is incorrect. This is the value of x, not $x + 6$.

Choice D is incorrect. This is the value of $x + 24$, not $x + 6$.

Question Difficulty: Easy

Question ID a7c02c04

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: a7c02c04

$$k + 12 = 336$$

What is the solution to the given equation?

A. 28

B. 324

C. 348

D. $4{,}032$

ID: a7c02c04 Answer

Correct Answer: B

Rationale

Choice B is correct. Subtracting 12 from both sides of the given equation yields $k = 324$. Therefore, the solution to the given equation is 324.

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 5cf46f74

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: 5cf46f74

$$x + 40 = 95$$

What value of x is the solution to the given equation?

ID: 5cf46f74 Answer

Correct Answer: 55

Rationale

The correct answer is 55. Subtracting 40 from both sides of the given equation yields $x = 55$. Therefore, the value of x is 55.

Question Difficulty: Easy

Question ID b36e8383

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in one variable	Easy

ID: b36e8383

$$4x + 6 = 18$$

Which equation has the same solution as the given equation?

A. $4x = 108$

B. $4x = 24$

C. $4x = 12$

D. $4x = 3$

ID: b36e8383 Answer

Correct Answer: C

Rationale

Choice C is correct. Subtracting 6 from both sides of the given equation yields $4x = 12$, which is the equation given in choice C. Since this equation is equivalent to the given equation, it has the same solution as the given equation.

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

Question Difficulty: Easy