Question ID 377a6aa4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 377a6aa4

If $3x - 8 = 7$, what is the value of $3x + 8$?

A. -1

B. 5

C. 13

D. 23

ID: 377a6aa4 Answer

Correct Answer: D

Rationale

Choice D is correct. It's given that $3x - 8 = 7$. Adding 8 to both sides of this equation yields $3x = 15$. Adding 8 to both sides of this equation yields $3x + 8 = 23$. Therefore, the value of $3x + 8$ is 23.

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

Choice B is incorrect. This is the value of x, not $3x + 8$.

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

Question Difficulty: Easy

Question ID 4e00f906

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 4e00f906

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

A. 14

B. 65

C. 86

D. 250

ID: 4e00f906 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 3cc991d1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 3cc991d1

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: 3cc991d1 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 4df85138

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 4df85138

$$16x + 30 = 190$$

Which equation has the same solution as the given equation?

A. $16x = 30$

B. $16x = 130$

C. $16x = 160$

D. $16x = 190$

ID: 4df85138 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 5b4e020d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 5b4e020d

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

A. 34

B. 40

C. 46

D. 64

ID: 5b4e020d 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 49729cb4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 49729cb4

If $3x - 27 = 24$, what is the value of $x - 9$?

A. 1

B. 8

C. 24

D. 35

ID: 49729cb4 Answer

Correct Answer: B

Rationale

Choice B is correct. Dividing each side of the given equation by 3 yields $x - 9 = 8$. Therefore, the value of $x - 9$ is 8.

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

Choice C is incorrect. This is the value of $3x - 27$, not $x - 9$.

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

Question Difficulty: Easy

Question ID 20c1b21d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 20c1b21d

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

A. 7

B. 12

C. 23

D. 60

ID: 20c1b21d 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 a23c1142

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: a23c1142

$$8x = 88$$

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

A. 11

B. 80

C. 96

D. 704

ID: a23c1142 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 9fa4d469

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 9fa4d469

$$4x + 5 = 165$$

What is the solution to the given equation?

ID: 9fa4d469 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 cf5d19dc

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: cf5d19dc

$$3x + 21 = 3x + k$$

In the given equation, k is a constant. The equation has infinitely many solutions. What is the value of k?

ID: cf5d19dc Answer

Correct Answer: 21

Rationale

The correct answer is 21. It's given that the equation $3x + 21 = 3x + k$ has infinitely many solutions. If an equation in one variable has infinitely many solutions, then the equation is true for any value of the variable. Subtracting $3x$ from both sides of the given equation yields $k = 21$. Since this equation must be true for any value of x, the value of k is 21.

Question Difficulty: Easy

Question ID 208e8feb

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 208e8feb

$$w + 7 = 357$$

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

A. 51

B. 350

C. 364

D. $3{,}577$

ID: 208e8feb 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 551e171e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 551e171e

$$x + 40 = 95$$

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

ID: 551e171e 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 16915678

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 16915678

A gym charges its members a onetime $36 enrollment fee and a membership fee of $19 per month. If there are no charges other than the enrollment fee and the membership fee, after how many months will a member have been charged a total of $188 at the gym?

A. 4

B. 5

C. 8

D. 10

ID: 16915678 Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that a gym charges its members a onetime $\$ 36$ enrollment fee and a membership fee of $\$ 19$ per month. Let x represent the number of months at the gym after which a member will have been charged a total of $\$ 188$. If there are no charges other than the enrollment fee and the membership fee, the equation $36 + 19x = 188$ can be used to represent this situation. Subtracting 36 from both sides of this equation yields $19x = 152$. Dividing both sides of this equation by 19 yields $x = 8$. Therefore, a member will have been charged a total of $\$ 188$ after 8 months at the gym.

Choice A is incorrect. A member will have been charged a total of $\$ 36 + 19 \times 4$, or $\$ 112$, after 4 months at the gym.

Choice B is incorrect. A member will have been charged a total of $\$ 36 + 19 \times 5$, or $\$ 131$, after 5 months at the gym.

Choice D is incorrect. A member will have been charged a total of $\$ 36 + 19 \times 10$, or $\$ 226$, after 10 months at the gym.

Question Difficulty: Easy

Question ID 65d4bce5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 65d4bce5

3 more than 8 times a number x is equal to 83. Which equation represents this situation?

A. $(3)(8)x = 83$

B. $8x = 83 + 3$

C. $3x + 8 = 83$

D. $8x + 3 = 83$

ID: 65d4bce5 Answer

Correct Answer: D

Rationale

Choice D is correct. The given phrase "8 times a number x" can be represented by the expression $8x$. The given phrase "3 more than" indicates an increase of 3 to a quantity. Therefore "3 more than 8 times a number x" can be represented by the expression $8x + 3$. Since it's given that 3 more than 8 times a number x is equal to 83, it follows that $8x + 3$ is equal to 83, or $8x + 3 = 83$. Therefore, the equation that represents this situation is $8x + 3 = 83$.

Choice A is incorrect. This equation represents 3 times the quantity 8 times a number x is equal to 83.

Choice B is incorrect. This equation represents 8 times a number x is equal to 3 more than 83.

Choice C is incorrect. This equation represents 8 more than 3 times a number x is equal to 83.

Question Difficulty: Easy

Question ID 1cab63df

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 1cab63df

If $4x + 2 = 12$, what is the value of $16x + 8$?

A. 40

B. 48

C. 56

D. 60

ID: 1cab63df Answer

Correct Answer: B

Rationale

Choice B is correct. Multiplying both sides of the given equation by 4 yields $44x + 2 = 412$, or $16x + 8 = 48$. Therefore, the value of $16x + 8$ is 48.

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 c3f7afcd

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: c3f7afcd

If $2 + x = 60$, what is the value of $16 + 8x$?

ID: c3f7afcd Answer

Correct Answer: 480

Rationale

The correct answer is 480. Multiplying both sides of the given equation by 8 yields $82 + x = 860$, or $16 + 8x = 480$. Therefore, if $2 + x = 60$, the value of $16 + 8x$ is 480.

Question Difficulty: Easy

Question ID b72da2e7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: b72da2e7

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: b72da2e7 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 8aa9a086

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 8aa9a086

The perimeter of an isosceles triangle is 36 feet. Each of the two congruent sides of the triangle has a length of 10 feet. What is the length, in feet, of the third side?

A. 10

B. 12

C. 16

D. 18

ID: 8aa9a086 Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that the perimeter of an isosceles triangle is 36 feet and that each of the two congruent sides has a length of 10 feet. The perimeter of a triangle is the sum of the lengths of its three sides. The equation $10 + 10 + x = 36$ can be used to represent this situation, where x is the length, in feet, of the third side. Combining like terms on the left-hand side of this equation yields $20 + x = 36$. Subtracting 20 from each side of this equation yields $x = 16$. Therefore, the length, in feet, of the third side is 16.

Choice A is incorrect. This would be the length, in feet, of the third side if the perimeter was 30 feet, not 36 feet.

Choice B is incorrect. This would be the length, in feet, of the third side if the perimeter was 32 feet, not 36 feet.

Choice D is incorrect. This would be the length, in feet, of the third side if the perimeter was 38 feet, not 36 feet.

Question Difficulty: Easy

Question ID 46eabc75

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 46eabc75

A manager is responsible for ordering supplies for a shaved ice shop. The shop's inventory starts with $4{,}500$ paper cups, and the manager estimates that 70 of these paper cups are used each day. Based on this estimate, in how many days will the supply of paper cups reach $1{,}700$?

A. 20

B. 40

C. 60

D. 80

ID: 46eabc75 Answer

Correct Answer: B

Rationale

Choice B is correct. It's given that the shop's inventory starts with $4{,}500$ paper cups and that the manager estimates that 70 of these paper cups are used each day. Let x represent the number of days in which the estimated supply of paper cups will reach $1{,}700$. The equation $4{,}500 - 70x = 1{,}700$ represents this situation. Subtracting $4{,}500$ from both sides of this equation yields $-70x = -2{,}800$. Dividing both sides of this equation by -70 yields $x = 40$. Therefore, based on this estimate, the supply of paper cups will reach $1{,}700$ in 40 days.

Choice A is incorrect. After 20 days, the estimated supply of paper cups would be $4{,}500 - 70(20)$, or $3{,}100$ cups, not $1{,}700$ cups.

Choice C is incorrect. After 60 days, the estimated supply of paper cups would be $4{,}500 - 70(60)$, or 300 cups, not $1{,}700$ cups.

Choice D is incorrect. After 80 days, the estimated supply of paper cups would be $4{,}500 - 70(80)$, or $-1{,}100$ cups, which isn't possible.

Question Difficulty: Easy

Question ID f0684572

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: f0684572

$$k + 12 = 336$$

What is the solution to the given equation?

A. 28

B. 324

C. 348

D. $4{,}032$

ID: f0684572 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 78cad658

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 78cad658

Nasir bought 9 storage bins that were each the same price. He used a coupon for $\$63$ off the entire purchase. The cost for the entire purchase after using the coupon was $\$27$. What was the original price, in dollars, for 1 storage bin?

ID: 78cad658 Answer

Correct Answer: 10

Rationale

The correct answer is 10. It's given that the cost for the entire purchase was $\$\ 27$ after a coupon was used for $\$\ 63$ off the entire purchase. Adding the amount of the coupon to the purchase price yields $27 + 63 = 90$. Thus, the cost for the entire purchase before using the coupon was $\$\ 90$. It's given that Nasir bought 9 storage bins. The original price for 1 storage bin can be found by dividing the total cost by 9. Therefore, the original price, in dollars, for 1 storage bin is $\frac{90}{9}$, or 10.

Question Difficulty: Easy

Question ID b9a1b79d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: b9a1b79d

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

A. 13

B. 20

C. 27

D. 34

ID: b9a1b79d 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 d1bdce45

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: d1bdce45

$$3x + 5(x + 4) = 76$$

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

A. 7

B. 8

C. 56

D. 72

ID: d1bdce45 Answer

Correct Answer: A

Rationale

Choice A is correct. Applying the distributive property on the left-hand side of the given equation yields $3x + 5x + 20 = 76$, or $8x + 20 = 76$. Subtracting 20 from each side of this equation yields $8x = 56$. Dividing each side of this equation by 8 yields $x = 7$.

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. This is the solution to the equation $x + 4 = 76$, not $3x + 5x + 4 = 76$.

Question Difficulty: Easy

Question ID f0e167d1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: f0e167d1

If $\frac{x}{8} = 5$, what is the value of $\frac{8}{x}$?

ID: f0e167d1 Answer

Correct Answer: .2, 1/5

Rationale

The correct answer is $\frac{1}{5}$. Since the number 5 can also be written as $\frac{5}{1}$, the given equation can also be written as $\frac{x}{8} = \frac{5}{1}$. This equation is equivalent to $\frac{8}{x} = \frac{1}{5}$. Therefore, the value of $\frac{8}{x}$ is $\frac{1}{5}$. Note that 1/5 and .2 are examples of ways to enter a correct answer.

Alternate approach: Multiplying both sides of the equation $\frac{x}{8} = 5$ by 8 yields $x = 40$. Substituting 40 for x into the expression $\frac{8}{x}$ yields $\frac{8}{40}$, or $\frac{1}{5}$.

Question Difficulty: Easy

Question ID c700f3b2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: c700f3b2

The perimeter of an isosceles triangle is 83 inches. Each of the two congruent sides of the triangle has a length of 24 inches. What is the length, in inches, of the third side?

ID: c700f3b2 Answer

Correct Answer: 35

Rationale

The correct answer is 35. It's given that the perimeter of an isosceles triangle is 83 inches and that each of the two congruent sides has a length of 24 inches. The perimeter of a triangle is the sum of the lengths of its three sides. The equation $24 + 24 + x = 83$ can be used to represent this situation, where x is the length, in inches, of the third side. Combining like terms on the left-hand side of this equation yields $48 + x = 83$. Subtracting 48 from both sides of this equation yields $x = 35$. Therefore, the length, in inches, of the third side is 35.

Question Difficulty: Easy

Question ID 5fcc71c6

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 5fcc71c6

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

A. -2

B. 18

C. 22

D. 42

ID: 5fcc71c6 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 0ed7f9ed

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 0ed7f9ed

If $4x = 3$, what is the value of $24x$?

A. $\frac{9}{2}$

B. 6

C. 18

D. 72

ID: 0ed7f9ed Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that $4x = 3$. Multiplying each side of this equation by 6 yields $24x = 18$. Therefore, the value of $24x$ is 18.

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

Choice B is incorrect. This is the value of $8x$, not $24x$.

Choice D is incorrect. This is the value of $96x$, not $24x$.

Question Difficulty: Easy

Question ID 4eb9696e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 4eb9696e

If $2x + 3 = 9$, what is the value of $6x - 1$?

ID: 4eb9696e Answer

Correct Answer: 17

Rationale

The correct answer is 17. It's given that $2x + 3 = 9$. Multiplying each side of this equation by 3 yields $32x + 3 = 39$, or $6x + 9 = 27$. Subtracting 10 from each side of this equation yields $6x + 9 - 10 = 27 - 10$, or $6x - 1 = 17$. Therefore, the value of $6x - 1$ is 17.

Question Difficulty: Easy

Question ID 9bad9c95

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 9bad9c95

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: 9bad9c95 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 a8512111

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: a8512111

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

A. 5

B. 25

C. 48

D. 300

ID: a8512111 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 edd4942f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: edd4942f

If $4x - 28 = -24$, what is the value of $x - 7$?

A. -24

B. -22

C. -6

D. -1

ID: edd4942f Answer

Correct Answer: C

Rationale

Choice C is correct. Dividing all terms in the given equation by 4 yields $\frac{4x}{4} - \frac{28}{4} = -\frac{24}{4}$, or $x - 7 = -6$. Therefore, the value of $x - 7$ is -6.

Choice A is incorrect. This is the value of $4x - 28$, not $x - 7$.

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 675f2d28

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 675f2d28

$$4x + 6 = 18$$

Which equation has the same solution as the given equation?

A. $4x = 108$

B. $4x = 24$

C. $4x = 12$

D. $4x = 3$

ID: 675f2d28 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

Question ID a2a256c4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: a2a256c4

$$2.6 + x = 2.8$$

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

ID: a2a256c4 Answer

Correct Answer: 0.2, 1/5

Rationale

The correct answer is .2 . Subtracting 2.6 from each side of the given equation yields $x = 0.2$. Therefore, the value of x that's the solution to the given equation is 0.2. Note that .2 and 1/5 are examples of ways to enter a correct answer.

Question Difficulty: Easy

Question ID 89a62ded

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 89a62ded

If $6 + x = 9$, what is the value of $18 + 3x$?

ID: 89a62ded Answer

Correct Answer: 27

Rationale

The correct answer is 27. Multiplying both sides of the given equation by 3 yields $36 + x = 39$, or $18 + 3x = 27$. Therefore, the value of $18 + 3x$ is 27.

Question Difficulty: Easy

Question ID 95e7152d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 95e7152d

If $2x = 12$, what is the value of $9x$?

ID: 95e7152d Answer

Correct Answer: 54

Rationale

The correct answer is 54. Dividing both sides of the given equation by 2 yields $x = 6$. Multiplying both sides of this equation by 9 yields $9x = 54$. Thus, the value of $9x$ is 54.

Question Difficulty: Easy

Question ID a432107b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: a432107b

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: a432107b 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 1083a0a9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 1083a0a9

If $8x = 6$, what is the value of $72x$?

A. 3

B. 15

C. 54

D. 57

ID: 1083a0a9 Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that $8x = 6$. Multiplying each side of this equation by 9 yields $72x = 54$. Therefore, the value of $72x$ is 54.

Choice A is incorrect. This is the value of $4x$, not $72x$.

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 c066203a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: c066203a

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: c066203a 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 5df78777

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 5df78777

A rocket contained $467{,}000$ kilograms (kg) of propellant before launch. Exactly 21 seconds after launch, $362{,}105$ kg of this propellant remained. On average, approximately how much propellant, in kg, did the rocket burn each second after launch?

A. $4{,}995$

B. $17{,}243$

C. $39{,}481$

D. $104{,}895$

ID: 5df78777 Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that the rocket contained $467{,}000 \text{ kilograms (kg)}$ of propellant before launch and had $362{,}105 \text{ kg}$ remaining exactly 21 seconds after launch. Finding the difference between the amount, in kg, of propellant before launch and the remaining amount, in kg, of propellant after launch gives the amount, in kg, of propellant burned during the 21 seconds: $467{,}000 - 362{,}105 = 104{,}895$. Dividing the amount of propellant burned by the number of seconds yields $\frac{104{,}895}{21} = 4{,}995$. Thus, an average of $4{,}995 \text{ kg}$ of propellant burned each second after launch.

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 finding the amount of propellant burned, rather than the amount of propellant burned each second.

Question Difficulty: Easy

Question ID b1491271

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: b1491271

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

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

A. -1

B. 5

C. 15

D. 21

ID: b1491271 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 d53729e6

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: d53729e6

$$8x - 7x + 130 = 260$$

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

ID: d53729e6 Answer

Correct Answer: 130

Rationale

The correct answer is 130. It's given that $8x$ - $7x + 130 = 260$. Combining like terms on the left-hand side of this equation yields $x + 130 = 260$. Subtracting 130 from each side of this equation yields $x = 130$. Therefore, the value of x that's the solution to the given equation is 130.

Question Difficulty: Easy

Question ID 8725b868

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 8725b868

What value of x is the solution to the equation $16x + 24 = 24x$?

A. -4

B. $\frac{3}{10}$

C. $\frac{1}{3}$

D. 3

ID: 8725b868 Answer

Correct Answer: D

Rationale

Choice D is correct. Subtracting $16x$ from both sides of the given equation yields $24 = 8x$. Dividing both sides of this equation by 8 yields $3 = x$. Therefore, the solution to the given equation is 3.

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 5741413f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 5741413f

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

A. 21

B. 32

C. 168

D. 224

ID: 5741413f 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 84, 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 6374e7e7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 6374e7e7

$$7(2x - 3) = 63$$

Which equation has the same solution as the given equation?

A. $2x - 3 = 9$

B. $2x - 3 = 56$

C. $2x - 21 = 63$

D. $2x - 21 = 70$

ID: 6374e7e7 Answer

Correct Answer: A

Rationale

Choice A is correct. Dividing each side of the given equation by 7 yields $\frac{72x - 3}{7} = \frac{63}{7}$, or $2x - 3 = 9$. Therefore, the equation $2x - 3 = 9$ is equivalent to the given equation and has the same solution.

Choice B is incorrect. This equation is equivalent to $72x - 3 = 392$, not $72x - 3 = 63$.

Choice C is incorrect. Distributing 7 on the left-hand side of the given equation yields $14x - 21 = 63$, not $2x - 21 = 63$.

Choice D is incorrect. Distributing 7 on the left-hand side of the given equation yields $14x - 21 = 63$, not $2x - 21 = 70$.

Question Difficulty: Easy

Question ID 2097069e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: 2097069e

$$13x = 112 - x$$

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

ID: 2097069e Answer

Correct Answer: 8

Rationale

The correct answer is 8. Adding x to both sides of the given equation yields $14x = 112$. Dividing both sides of this equation by 14 yields $x = 8$.

Question Difficulty: Easy

Question ID fdd71b2a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: fdd71b2a

John paid a total of $\$165$ for a microscope by making a down payment of $\$37$ plus p monthly payments of $\$16$ each. Which of the following equations represents this situation?

A. $16p - 37 = 165$

B. $37p - 16 = 165$

C. $16p + 37 = 165$

D. $37p + 16 = 165$

ID: fdd71b2a Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that John made a $\$\ 16$ payment each month for p months. The total amount of these payments can be represented by the expression $16p$. The down payment can be added to that amount to find the total amount John paid, yielding the expression $16p + 37$. It's given that John paid a total of $\$\ 165$. Therefore, the expression for the total amount John paid can be set equal to that amount, yielding the equation $16p + 37 = 165$.

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 d9029f13

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	Easy

ID: d9029f13

If $6n = 12$, what is the value of $n + 4$?

ID: d9029f13 Answer

Correct Answer: 6

Rationale

The correct answer is 6. Dividing both sides of the equation $6n = 12$ by 6 yields $n = 2$. Substituting 2 for n in the expression $n + 4$ yields $2 + 4$, or 6.

Question Difficulty: Easy