

Question ID 37d52288

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 37d52288

210 is $p\%$ greater than 30. What is the value of p ?

ID: 37d52288 Answer

Correct Answer: 600

Rationale

The correct answer is 600. It's given that 210 is $p\%$ greater than 30. It follows that $210 = 1 + \frac{p}{100}30$. Dividing both sides of this equation by 30 yields $7 = 1 + \frac{p}{100}$. Subtracting 1 from both sides of this equation yields $6 = \frac{p}{100}$. Multiplying both sides of this equation by 100 yields $p = 600$. Therefore, the value of p is 600.

Question Difficulty: Hard

Question ID 5dd20f69

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 5dd20f69

37% of the items in a box are green. Of those, 37% are also rectangular. Of the green rectangular items, 42% are also metal. Which of the following is closest to the percentage of the items in the box that are not rectangular green metal items?

- A. 1.16%
- B. 57.50%
- C. 94.25%
- D. 98.84%

ID: 5dd20f69 Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that 37% of the items in a box are green. Let x represent the total number of items in the box. It follows that $\frac{37}{100}x$, or $0.37x$, items in the box are green. It's also given that of those, 37% are also rectangular. Therefore, $\frac{37}{100}0.37x$, or $0.1369x$, items in the box are green rectangular items. It's also given that of the green rectangular items, 42% are also metal. Therefore, $\frac{42}{100}0.1369x$, or $0.057498x$, items in the box are rectangular green metal items. The number of the items in the box that are not rectangular green metal items is the total number of items in the box minus the number of rectangular green metal items in the box. Therefore, the number of items in the box that are not rectangular green metal items is $x - 0.057498x$, or $0.942502x$. The percentage of items in the box that are not rectangular green metal items is the percentage that $0.942502x$ is of x . If $p\%$ represents this percentage, the value of p is $100\frac{0.942502x}{x}$, or 94.2502. Of the given choices, 94.25% is closest to the percentage of items in the box that are not rectangular green metal items.

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: Hard

Question ID bc6b343d

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: bc6b343d

A gift shop buys souvenirs at a wholesale price of **7.00** dollars each and resells them each at a retail price that is **290%** of the wholesale price. At the end of the season, any remaining souvenirs are marked at a discounted price that is **80%** off the retail price. What is the discounted price of each remaining souvenir, in dollars?

ID: bc6b343d Answer

Correct Answer: 203/50, 4.06

Rationale

The correct answer is 4.06. It's given that the retail price is 290% of the wholesale price of \$ 7.00. Thus, the retail price is $\$ 7.00 \frac{290}{100}$, which is equivalent to \$ 7.002.9, or \$ 20.30. It's also given that the discounted price is 80% off the retail price. Thus, the discounted price is $\$ 20.301 - \frac{80}{100}$, which is equivalent to \$ 20.300.20, or \$ 4.06.

Question Difficulty: Hard

Question ID e96895bb

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: e96895bb

The expression $0.35x$ represents the result of decreasing a positive quantity x by what percent?

- A. 3.5%
- B. 35%
- C. 6.5%
- D. 65%

ID: e96895bb Answer

Correct Answer: D

Rationale

Choice D is correct. Let $n\%$ represent the percent by which the positive quantity x is decreased to result in $0.35x$. The value of n can be found by solving the equation $x - \frac{n}{100}x = 0.35x$. Since x is a common factor of each of the terms on the left-hand side of this equation, the equation can be rewritten as $x1 - \frac{n}{100} = 0.35x$. Dividing each side of this equation by x yields $1 - \frac{n}{100} = 0.35$. Multiplying each side of this equation by 100 yields $100 - n = 35$. Subtracting 100 from each side of this equation yields $-n = -65$. Dividing each side of this equation by -1 yields $n = 65$. Therefore, the expression $0.35x$ represents the result of decreasing the positive quantity x by 65%.

Choice A is incorrect. Decreasing the quantity x by 3.5% yields $x - 0.035x$, or $0.965x$, not $0.35x$.

Choice B is incorrect. Decreasing the quantity x by 35% yields $x - 0.35x$, or $0.65x$, not $0.35x$.

Choice C is incorrect. Decreasing the quantity x by 6.5% yields $x - 0.065x$, or $0.935x$, not $0.35x$.

Question Difficulty: Hard

Question ID 42e6c47c

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 42e6c47c

The result of increasing the quantity x by 400% is 60. What is the value of x ?

- A. 12
- B. 15
- C. 240
- D. 340

ID: 42e6c47c Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that the result of increasing the quantity x by 400% is 60. This can be written as $x + \frac{400}{100}x = 60$, which is equivalent to $x + 4x = 60$, or $5x = 60$. Dividing each side of this equation by 5 yields $x = 12$. Therefore, the value of x is 12.

Choice B is incorrect. The result of increasing the quantity 15 by 400% is 75, not 60.

Choice C is incorrect. The result of increasing the quantity 240 by 400% is 1,200, not 60.

Choice D is incorrect. The result of increasing the quantity 340 by 400% is 1,700, not 60.

Question Difficulty: Hard

Question ID c6574ec0

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: c6574ec0

In March, the price of a collectible card was **\$15.50**. In April, the price of the collectible card was **\$17.36**. The price of the collectible card in April was $p\%$ of the price of the collectible card in March. What is the value of p ?

- A. 12
- B. 88
- C. 112
- D. 188

ID: c6574ec0 Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that the price of the collectible card was \$ 15.50 in March and \$ 17.36 in April. It's also given that the price of the collectible card in April was $p\%$ of the price in March. It follows that \$ 17.36 is $p\%$ of \$ 15.50. Therefore, the value of p can be calculated by solving the equation $17.36 = \frac{p}{100}15.50$, or $17.36 = \frac{15.50p}{100}$. Multiplying each side of this equation by 100 yields $1,736 = 15.50p$. Dividing each side of this equation by 15.50 yields $112 = p$. Therefore, the value of p is 112.

Choice A is incorrect. 12% is the percent increase in the price of the collectible card from March to April.

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: Hard

Question ID 4192efd7

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 4192efd7

140 is $p\%$ greater than 10. What is the value of p ?

- A. 1,400
- B. 1,300
- C. 140
- D. 130

ID: 4192efd7 Answer

Correct Answer: B

Rationale

Choice B is correct. It's given that 140 is $p\%$ greater than 10. It follows that $140 = 10 + \frac{p}{100}10$, which is equivalent to $140 = 10 + \frac{10}{100}p$, or $140 = 10 + 0.1p$. Subtracting 10 from each side of this equation yields $130 = 0.1p$. Dividing each side of this equation by 0.1 yields $1,300 = p$, or $p = 1,300$.

Choice A is incorrect. This would be the value of p if 140 were $p\%$ of 10, not $p\%$ greater than 10.

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: Hard

Question ID b1d65b2d

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: b1d65b2d

The number a is **70%** less than the positive number b . The number c is **60%** greater than a . The number c is how many times b ?

ID: b1d65b2d Answer

Correct Answer: .48, 12/25

Rationale

The correct answer is .48 . It's given that the number a is 70% less than the positive number b . Therefore, $a = 1 - \frac{70}{100}b$, which is equivalent to $a = 1 - 0.70b$, or $a = 0.30b$. It's also given that the number c is 60% greater than a . Therefore, $c = 1 + \frac{60}{100}a$, which is equivalent to $c = 1 + 0.60a$, or $c = 1.60a$. Since $a = 0.30b$, substituting $0.30b$ for a in the equation $c = 1.60a$ yields $c = 1.60(0.30b)$, or $c = 0.48b$. Thus, c is 0.48 times b . Note that .48 and 12/25 are examples of ways to enter a correct answer.

Question Difficulty: Hard

Question ID 88120df7

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 88120df7

13 is $p\%$ of 25. What is the value of p ?

ID: 88120df7 Answer

Correct Answer: 52

Rationale

The correct answer is 52. It's given that 13 is $p\%$ of 25. It follows that $\frac{13}{25} = \frac{p}{100}$. Multiplying both sides of this equation by 100 gives $52 = p$. Therefore, the value of p is 52.

Question Difficulty: Hard

Question ID 167f9a80

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 167f9a80

According to a set of standards, a certain type of substance can contain a maximum of **0.001%** phosphorus by mass. If a sample of this substance has a mass of **140** grams, what is the maximum mass, in grams, of phosphorus the sample can contain to meet these standards?

ID: 167f9a80 Answer

Correct Answer: .0014

Rationale

The correct answer is .0014 . It's given that a certain type of substance can contain a maximum of 0.001% phosphorus by mass to meet a set of standards. If a sample of the substance has a mass of 140 grams, it follows that the maximum mass, in grams, of phosphorus the sample can contain to meet the standards is 0.001% of 140, or $\frac{0.001}{100}140$, which is equivalent to 0.00001140, or 0.0014. Note that .0014 and 0.001 are examples of ways to enter a correct answer.

Question Difficulty: Hard

Question ID f317ce0b

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: f317ce0b

The number a is 110% greater than the number b . The number b is 90% less than 47. What is the value of a ?

ID: f317ce0b Answer

Correct Answer: 9.87, 987/100

Rationale

The correct answer is 9.87. It's given that the number a is 110% greater than the number b . It follows that $a = 1 + \frac{110}{100}b$, or $a = 2.1b$. It's also given that the number b is 90% less than 47. It follows that $b = 1 - \frac{90}{100}47$, or $b = 0.147$, which yields $b = 4.7$. Substituting 4.7 for b in the equation $a = 2.1b$ yields $a = 2.1(4.7)$, which is equivalent to $a = 9.87$. Therefore, the value of a is 9.87.

Question Difficulty: Hard

Question ID a645a9e2

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: a645a9e2

The number of zebras in a population in **2018** was **1.27** times the number of zebras in this population in **2014**. If the number of zebras in this population in **2014** is **$p\%$** of the number of zebras in this population in **2018**, what is the value of **p** , to the nearest whole number?

ID: a645a9e2 Answer

Correct Answer: 79

Rationale

The correct answer is 79. Let x represent the number of zebras in the population in 2014 and let y represent the number of zebras in the population in 2018. It's given that the number of zebras in this population in 2018 was 1.27 times the number of zebras in this population in 2014. It follows that the equation $y = 1.27x$ represents this situation. Dividing both sides of this equation by 1.27 yields $\frac{y}{1.27} = x$, or $\frac{1}{1.27}y = x$. Therefore, the number of zebras in this population in 2014 is $\frac{1}{1.27}$ times the number of zebras in this population in 2018. If the number of zebras in this population in 2014 is $p\%$ of the number of zebras in this population in 2018, then $x = \frac{p}{100}y$. It follows that $\frac{1}{1.27} = \frac{p}{100}$, or $\frac{100}{1.27} = p$, which means p is approximately equal to 78.74. Therefore, the value of p , to the nearest whole number, is 79.

Question Difficulty: Hard

Question ID 87bcd883

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 87bcd883

The population of City A increased by **7%** from **2015** to **2016**. If the **2016** population is ***k*** times the **2015** population, what is the value of ***k***?

- A. **0.07**
- B. **0.7**
- C. **1.07**
- D. **1.7**

ID: 87bcd883 Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that the population of City A increased by 7% from 2015 to 2016. Therefore, the population of City A in 2016 includes 100% of the population of City A in 2015 plus an additional 7% of the population of City A in 2015. This means that the population of City A in 2016 is 107% of the population in 2015. Thus, the population of City A in 2016 is $\frac{107}{100}$, or 1.07, times the 2015 population. Therefore, the value of *k* is 1.07.

Choice A is incorrect. This would be the value of *k* if the population in 2016 was 7% of the population in 2015.

Choice B is incorrect. This would be the value of *k* if the population in 2016 was 70% of the population in 2015.

Choice D is incorrect. This would be the value of *k* if the population increased by 70%, not 7%, from 2015 to 2016.

Question Difficulty: Hard

Question ID 51136782

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 51136782

The number a is 190% greater than the number b . The number b is 80% less than 24. What is the value of a ?

- A. 9.12
- B. 13.92
- C. 26.40
- D. 36.48

ID: 51136782 Answer

Correct Answer: B

Rationale

Choice B is correct. It's given that the number b is 80% less than 24. It follows that b is equal to 24 minus 80% of 24, which can be written as $b = 24 - \frac{80}{100}24$. This is equivalent to $b = 24 - 0.824$, or $b = 4.8$. It's also given that the number a is 190% greater than the number b . It follows that a is equal to b plus 190% of b . Since $b = 4.8$, this can be written as $a = 4.8 + \frac{190}{100}4.8$. This is equivalent to $a = 4.8 + 1.94.8$, or $a = 13.92$.

Choice A is incorrect. This would be the value of a if a were 190% of b , not 190% greater than b .

Choice C is incorrect. This is 190 - 80% of 24.

Choice D is incorrect. This would be the value of a if b were 80% of 24, not 80% less than 24, and a were 190% of b , not 190% greater than b .

Question Difficulty: Hard

Question ID 1047fccf

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 1047fccf

The number a is 60% greater than the positive number b . The number c is 45% less than a . The number c is how many times b ?

ID: 1047fccf Answer

Correct Answer: .88, 22/25

Rationale

The correct answer is .88 . It's given that the number a is 60% greater than the positive number b . Therefore, $a = 1 + \frac{60}{100}b$, which is equivalent to $a = 1 + 0.60b$, or $a = 1.60b$. It's also given that the number c is 45% less than a . Therefore, $c = 1 - \frac{45}{100}a$, which is equivalent to $c = 1 - 0.45a$, or $c = 0.55a$. Since $a = 1.60b$, substituting $1.60b$ for a in the equation $c = 0.55a$ yields $c = 0.55(1.60b)$, or $c = 0.88b$. Thus, the number c is 0.88 times the number b . Note that .88 and 22/25 are examples of ways to enter a correct answer.

Question Difficulty: Hard

Question ID ac2871c5

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: ac2871c5

After **20%** of the original number of marbles in a group were removed from the group, **360** marbles remained in the group. How many marbles were removed from the group?

- A. **72**
- B. **90**
- C. **450**
- D. **1,800**

ID: ac2871c5 Answer

Correct Answer: B

Rationale

Choice B is correct. It's given that 20% of the original number of marbles were removed from the group. Let x represent the original number of marbles in the group. It follows that $\frac{20}{100}x$, or $0.20x$, marbles were removed from the group. Therefore, $x - 0.20x$ marbles remained in the group. It's also given that 360 marbles remained in the group. Thus, $x - 0.20x = 360$, or $0.80x = 360$. Dividing both sides of this equation by 0.80 yields $x = 450$. Substituting 450 for x in the expression $0.20x$ yields $0.20(450)$, or 90. Therefore, 90 marbles were removed from the group.

Choice A is incorrect. This is 20% of the remaining number of marbles.

Choice C is incorrect. This is the original number of marbles, not the number of marbles that were removed.

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

Question Difficulty: Hard

Question ID 1a471048

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 1a471048

- The positive number a is **2,241%** of the sum of the positive numbers b and c , and b is **83%** of c . What percent of b is a ?
- A. **23.24%**
 - B. **49.41%**
 - C. **2,324%**
 - D. **4,941%**

ID: 1a471048 Answer

Correct Answer: D

Rationale

Choice D is correct. It's given that a is 2,241% of the sum of b and c . This can be represented by the equation $a = \frac{2,241}{100}b + c$, or $a = 22.41b + c$. It's also given that that b is 83% of c . This can be represented by the equation $b = \frac{83}{100}c$, or $b = 0.83c$. Dividing both sides of this equation by 0.83 yields $\frac{b}{0.83} = c$. Substituting $\frac{b}{0.83}$ for c in the equation $a = 22.41b + c$ yields $a = 22.41b + \frac{b}{0.83}$, or $a = 22.41\frac{1.83b}{0.83}$, which is equivalent to $a = \frac{41.0103b}{0.83}$, or $a = 49.41b$. This equation is equivalent to $a = \frac{4,941}{100}b$; therefore, a is 4,941% of b .

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: Hard

Question ID 9d9d9065

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 9d9d9065

The regular price of a shirt at a store is **\$11.70**. The sale price of the shirt is **80%** less than the regular price, and the sale price is **30%** greater than the store's cost for the shirt. What was the store's cost, in dollars, for the shirt? (Disregard the **\$** sign when entering your answer. For example, if your answer is **\$4.97**, enter **4.97**)

ID: 9d9d9065 Answer

Correct Answer: 1.8, 9/5

Rationale

The correct answer is 1.8. It's given that the regular price of a shirt at a store is \$ 11.70, and the sale price of the shirt is 80% less than the regular price. It follows that the sale price of the shirt is $\$ 11.701 - \frac{80}{100}$, or $\$ 11.701 - 0.8$, which is equivalent to \$ 2.34. It's also given that the sale price of the shirt is 30% greater than the store's cost for the shirt. Let x represent the store's cost for the shirt. It follows that $2.34 = 1 + \frac{30}{100}x$, or $2.34 = 1.3x$. Dividing both sides of this equation by 1.3 yields $x = 1.80$. Therefore, the store's cost, in dollars, for the shirt is 1.80. Note that 1.8 and 9/5 are examples of ways to enter a correct answer.

Question Difficulty: Hard

Question ID b20f365f

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: b20f365f

The value of a collectible comic book increased by **167%** from the end of **2011** to the end of **2012** and then decreased by **16%** from the end of **2012** to the end of **2013**. What was the net percentage increase in the value of the collectible comic book from the end of **2011** to the end of **2013**?

- A. **124.28%**
- B. **140.28%**
- C. **151.00%**
- D. **209.72%**

ID: b20f365f Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that the value of the comic book increased by 167% from the end of 2011 to the end of 2012. Therefore, if the value of the comic book at the end of 2011 was x dollars, then the value, in dollars, of the comic book at the end of 2012 was $x + \frac{167}{100}x$, which can be rewritten as $1x + 1.67x$, or $2.67x$. It's also given that the value of the comic book decreased by 16% from the end of 2012 to the end of 2013. Therefore, the value, in dollars, of the comic book at the end of 2013 was $2.67x - 2.67x\frac{16}{100}$, which can be rewritten as $2.67x - 2.67x0.16$, or $2.2428x$. Thus, if the value of the comic book at the end of 2011 was x dollars, and the value of the comic book at the end of 2013 was $2.2428x$ dollars, then from the end of 2011 to the end of 2013, the value of the comic book increased by $2.2428x - 1x$, or $1.2428x$, dollars. Therefore, the increase in the value of the comic book from the end of 2011 to the end of 2013 is equal to 1.2428 times the value of the comic book at the end of 2011. It follows that from the end of 2011 to the end of 2013, the net percentage increase in the value of the comic book was 1.2428100%, or 124.28%.

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

Choice C is incorrect. This is the difference between the net percentage increase in the value of the comic book from the end of 2011 to the end of 2012 and the net percentage decrease in the value of the comic book from the end of 2012 to the end of 2013, not the net percentage increase in the value of the comic book from the end of 2011 to the end of 2013.

Choice D is incorrect. This is the net percentage increase in the value of the comic book from the end of 2011 to the end of 2013, if the value of the comic book increased by 167% from the end of 2011 to the end of 2012 and then increased, not decreased, by 16% from the end of 2012 to the end of 2013.

Question Difficulty: Hard

Question ID 60526ddc

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 60526ddc

The population of Greenville increased by **7%** from **2015** to **2016**. If the **2016** population is ***k*** times the **2015** population, what is the value of ***k***?

- A. **0.07**
- B. **0.7**
- C. **1.07**
- D. **1.7**

ID: 60526ddc Answer

Correct Answer: C

Rationale

Choice C is correct. Let x be the 2015 population of Greenville. It's given that the population increased by 7% from 2015 to 2016. The increase in population can be written as $0.07x$. The 2016 population of Greenville is given as the sum of the 2015 population of Greenville and the increase in population from 2015 to 2016. This can be rewritten as $x + 0.07x$, or $1.07x$. Therefore, the value of k is 1.07.

Choice A is incorrect. This is the percent, represented as a decimal, that the population increased from 2015 to 2016, not the value of k .

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

Choice D is incorrect. This is the value of k if the population increased by 70%, not 7%, from 2015 to 2016.

Question Difficulty: Hard

Question ID bd38029d

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: bd38029d

The number a is 70% less than the positive number b . The number c is 80% greater than a . The number c is how many times b ?

ID: bd38029d Answer

Correct Answer: .54, 27/50

Rationale

The correct answer is .54 . It's given that the number a is 70% less than the positive number b . Therefore, $a = 1 - \frac{70}{100}b$, which is equivalent to $a = 1 - 0.70b$, or $a = 0.30b$. It's also given that the number c is 80% greater than a . Therefore, $c = 1 + \frac{80}{100}a$, which is equivalent to $c = 1 + 0.80a$, or $c = 1.80a$. Since $a = 0.30b$, substituting $0.30b$ for a in the equation $c = 1.80a$ yields $c = 1.80(0.30b)$, or $c = 0.54b$. Thus, c is 0.54 times b . Note that .54 and 27/50 are examples of ways to enter a correct answer.

Question Difficulty: Hard

Question ID 70bf7e21

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: 70bf7e21

In 2008, Zinah earned 14% more than in 2007, and in 2009 Zinah earned 4% more than in 2008. If Zinah earned y times as much in 2009 as in 2007, what is the value of y ?

- A. 0.5600
- B. 1.0056
- C. 1.1800
- D. 1.1856

ID: 70bf7e21 Answer

Correct Answer: D

Rationale

Choice D is correct. It's given that in 2008 Zinah earned 14% more than in 2007. Let h represent the amount Zinah earned in 2007 and let j represent the amount that Zinah earned in 2008. This situation can be represented by the equation $j = 1 + \frac{14}{100}h$, or $j = 1.14h$. It's also given that in 2009 Zinah earned 4% more than in 2008. Let k represent the amount Zinah earned in 2009. This situation can be represented by the equation $k = 1 + \frac{4}{100}j$, or $k = 1.04j$. Substituting $1.14h$ for j in the equation $k = 1.04j$ yields $k = 1.04(1.14h)$, or $k = 1.1856h$. If Zinah earned y times as much in 2009 as in 2007, then the value of y is 1.1856.

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: Hard

Question ID c8a2954a

Assessment	Test	Domain	Skill	Difficulty
PSAT/NMSQT & PSAT 10	Math	Problem-Solving and Data Analysis	Percentages	

ID: c8a2954a

The number w is 110% greater than the number z . The number z is 55% less than 50. What is the value of w ?

ID: c8a2954a Answer

Correct Answer: 189/4, 47.25

Rationale

The correct answer is 47.25. It's given that the number w is 110% greater than the number z . It follows that $w = 1 + \frac{110}{100}z$, or $w = 2.1z$. It's also given that the number z is 55% less than 50. It follows that $z = 1 - \frac{55}{100}50$, or $z = 0.4550$, which yields $z = 22.5$. Substituting 22.5 for z in the equation $w = 2.1z$ yields $w = 2.122.5$, which is equivalent to $w = 47.25$. Therefore, the value of w is 47.25. Note that 47.25 and 189/4 are examples of ways to enter a correct answer.

Question Difficulty: Hard