

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Problem-Solving and Data Analysis	Percentages	Hard

ID: d1dd92d8

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?

$$\begin{aligned} P_{2018} &= 1.27 P_{2014} \rightarrow P_{2014} = \frac{1}{1.27} P_{2018} \\ P_{2014} &= \frac{P}{100} P_{2018} \\ \frac{P}{100} &= \frac{1}{1.27} \\ P &= 78.7402 \\ &\approx 79 \end{aligned}$$

Question ID 11059bb6

Assessment	Test	Domain	Skill	Difficulty
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ID: 11059bb6



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**

Question ID b22cac33

Assessment	Test	Domain	Skill	Difficulty
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ID: b22cac33

The positive number a is 230% of the number b , and a is 60% of the number c . If c is $p\%$ of b , which of the following is closest to the value of p ?

- A. 138
- B. 217
- C. 283
- ~~D. 383~~

$$a = 2.3b$$
$$a = 0.6c$$
$$2.3b = 0.6c$$
$$\frac{2.3}{0.6} = \frac{c}{b}$$
$$\frac{2.3}{0.6} = \frac{p}{100}$$
$$p = 383.33$$
$$\approx 383 //$$

$$c = \frac{p}{100} b$$
$$\frac{c}{b} = \frac{p}{100}$$

Question ID f59a7e23

Assessment	Test	Domain	Skill	Difficulty
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ID: f59a7e23

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

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

$$140 = \left(1 + \frac{p}{100}\right) 10$$
$$p = 1,300 //$$

Question ID 6baeb1d2

Assessment	Test	Domain	Skill	Difficulty
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ID: 6baeb1d2



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%**

Question ID 7ffe93b2

Assessment	Test	Domain	Skill	Difficulty
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ID: 7ffe93b2

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 ?

$$\begin{aligned} a &= 0.3b \\ c &= 1.6a \\ &= 1.6(0.3b) \\ &= 0.48b \\ X &= 0.48 // \end{aligned}$$

$$c = \underline{X}b$$

Question ID 6e1be879

Assessment	Test	Domain	Skill	Difficulty
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ID: 6e1be879

A reseller buys certain books for a purchase price of 5.00 dollars each and then marks them each for sale at a consumer price that is 270% of the purchase price. After 4 months, any remaining books not yet sold are marked at a discounted price that is 70% off the consumer price. What is the discounted price of each of the remaining books, in dollars?

$$5(2.7)(0.3) = 4.05 //$$

Question ID 6ea5114f

Assessment	Test	Domain	Skill	Difficulty
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ID: 6ea5114f

to 1,900

The result of increasing the quantity x by 1,800% is 684. What is the value of x ?

- A. 12,996
- B. 12,312
- C. 38
- ~~D. 36~~

$19x = 684$
 $x = 36 //$

Question ID d783308c

Assessment	Test	Domain	Skill	Difficulty
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ID: d783308c

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 ?

$$a = 0.3b$$
$$c = 1.8a$$
$$= 1.8(0.3b)$$
$$= 0.54b$$
$$x = 0.54 //$$

$$c = \underbrace{x}_{}b$$

Question ID d02d4d17

Assessment	Test	Domain	Skill	Difficulty
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ID: d02d4d17

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

$$210 = \left(1 + \frac{p}{100}\right) 30$$
$$p = 600 //$$

Question ID 134cf693

Assessment	Test	Domain	Skill	Difficulty
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ID: 134cf693

$p\%b = a$

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%~~

$$a = 22.41(\underline{b} + c)$$
$$b = 0.83c \rightarrow c = \frac{b}{0.83}$$
$$a = 22.41(\underline{0.83c} + c)$$
$$a = 41.0103c \rightarrow c = \frac{a}{41.0103}$$
$$\frac{b}{0.83} = \frac{a}{41.0103} \rightarrow C$$
$$a = 49.41b$$
$$= \underline{4,941\%} b$$
$$p = 4,941 //$$

Question ID f2fe78cb

Assessment	Test	Domain	Skill	Difficulty
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ID: f2fe78cb



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**

Question ID 220d0de5

Assessment	Test	Domain	Skill	Difficulty
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ID: 220d0de5

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

$$a = 2.9 \underset{\sim}{b}$$
$$b = 0.2(24)$$
$$a = 2.9(0.2)(24)$$
$$= 13.92 //$$

Question ID 991f9871

Assessment	Test	Domain	Skill	Difficulty
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ID: 991f9871

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 ?

$$\begin{aligned} a &= 1.6b \\ c &= 0.55a \\ &= 0.55(1.6b) \\ &= 0.88b \\ X &= 0.88 // \end{aligned}$$

$$c = xb$$

Question ID 6801d39d

Assessment	Test	Domain	Skill	Difficulty
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ID: 6801d39d

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

$$x \left(1 + \frac{400}{100} \right) = 60$$
$$\begin{array}{rcl} 5x & = & 60 \\ x & = & 12 \end{array} //$$

Question ID 443794ac

Assessment	Test	Domain	Skill	Difficulty
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ID: 443794ac

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%~~

$$0.35 \cancel{x} = \cancel{x} \left(1 - \frac{p}{100} \right)$$
$$p = 0.65$$
$$= 65 //$$

Question ID d2da7c69

Assessment	Test	Domain	Skill	Difficulty
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ID: d2da7c69

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

$$\begin{aligned} a &= 2.1 \underline{\underline{b}} \\ b &= 0.1(47) \\ &= 2.1(0.1)(47) \\ &= 9.87 \end{aligned}$$

Question ID 3f215d34

Assessment	Test	Domain	Skill	Difficulty
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ID: 3f215d34



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%**

Question ID b869812a

Assessment	Test	Domain	Skill	Difficulty
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ID: b869812a

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)

$$\begin{aligned} \text{Sale} &= 0.2 (11.7) \\ &= 2.34 \\ \text{Sale} &= 1.3 \text{ Cost} \\ 2.34 &= 1.3 \text{ Cost} \\ \text{Cost} &= 1.8 \end{aligned}$$

Question ID 3ea17fb0

Assessment	Test	Domain	Skill	Difficulty
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ID: 3ea17fb0

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?

$$\begin{aligned} \text{Sale} &= 7(2.9) \\ &= 20.3 \\ \text{Discount Price} &= 20.3(0.2) \\ &= 4.06 // \end{aligned}$$

Question ID d184e28c

Assessment	Test	Domain	Skill	Difficulty
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ID: d184e28c

A scientist studying the life cycle of dragonflies counted the number of dragonflies in a certain habitat each day for 46 days. On February 15, there were 99 dragonflies in the habitat. The percent increase in the number of dragonflies in the habitat from January 1 to February 15 was 12.50%. How many dragonflies were in the habitat on January 1?

~~X~~ 88

$$\begin{aligned} 1.125 \times &= 99 \\ \times &= 88 // \end{aligned}$$

- B. 87
- C. 12
- D. 8

Question ID d683c482

Assessment	Test	Domain	Skill	Difficulty
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ID: d683c482

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

$$\begin{aligned} W &= 2.1 \underline{\underline{z}} \\ z &= 0.45(50) \\ &= 2.1(0.45)(50) \\ &= 47.25 // \end{aligned}$$

Question ID 7dfb73de

Assessment	Test	Domain	Skill	Difficulty
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ID: 7dfb73de



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?