

Practice Test

Percents

1

A chemist mixes x mL of a 34% acid solution with a 10% acid solution. If the resulting solution is 40 mL with 25% acidity, what is the value of x ?

- A) 18.5
- B) 20
- C) 22.5
- D) 25

2

The price of a package of 4 pens is \$8.00. The same pens are sold at \$2.50 each. If Alex bought three packages of pens rather than buying 12 pens individually, the amount he saved on 12 pens is what percent of the amount he paid?

- A) 12%
- B) 20%
- C) 25%
- D) 30%

3

There are 600 bottles of sports drinks in a store. 25% of the bottles are orange flavored drinks. On Monday 30% of the orange flavored drinks in the store were sold and on Tuesday 20% of the remaining orange flavored drinks were sold. How many bottles of orange flavored drinks were sold in the two days?

- A) 52
- B) 58
- C) 66
- D) 75

4

A tablet with a list price of x dollars is discounted by 15% and then discounted an additional 12%. What is the final sale price of the tablet, in terms of x ?

- A) $0.73x$
- B) $0.748x$
- C) $0.75x$
- D) $0.765x$

5

There is a total of n pairs of shoes in a store, all of which are either black or brown. If there are m pairs of brown shoes in the store, then in terms of m and n , what percent of the shoes in the store are black?

- A) $\frac{m}{n}\%$
- B) $\frac{n-m}{n}\%$
- C) $(1 - \frac{100m}{n})\%$
- D) $100(1 - \frac{m}{n})\%$

6

The numbers a , b , and c are positive and a equals $3.2bc$. If b is increased by 150% and c is decreased by 60%, then a is

- A) increased by 90%
- B) increased by 10%
- C) unchanged
- D) decreased by 10%

7

There are 10 history books in a bookcase. When the number of books increases by x percent, the new number of history books is 24. What is the value of x ?

- A) 58
- B) 70
- C) 120
- D) 140

8

Number n is 25 less than 120 percent of itself. What is the value of n ?

- A) 125
- B) 120
- C) 105
- D) 90

9

Of the 500 cars displayed in a certain car dealer, 7 percent are blue and 4 percent are red. The number of blue cars in the car dealer are what percent greater than the number of red cars?

- A) 30%
- B) 50%
- C) 75%
- D) 125%

10

If 300% of 0.18 is equivalent to 20% of b , then b is equivalent to what number?

11

Five people contributed \$9,000 each toward the purchase of a sailboat. If they ended up paying \$38,500 plus 8% sales tax for the boat, how much money should be refunded to each person?

12

A store used to sell an MP3 for \$72, which is 50% more than the wholesale cost. At a special holiday sale, the price of the MP3 was 20% less than the wholesale cost. What was the special sale price of the MP3?

Answers Percents

Chapter 7 Practice Test

1. D

If x mL of a 34% acid solution is added to a 10% acid solution and the resulting solution is 40 mL of a 25% solution, then the amount of the 10% acid solution should be $40 - x$ mL.

x mL of 34 % acid + $(40 - x)$ mL of 10% acid
= 40 mL of 25 % acid

$$0.34x + 0.1(40 - x) = 0.25(40)$$

$$0.34x + 4 - 0.1x = 10$$

$$0.24x = 6$$

$$x = 25$$

2. C

The cost of 3 packages of pens is $3 \times \$8.00$, or \$24 and the cost of 12 pens bought individually is $12 \times \$2.50$, or \$30. The amount saved is $30 - 24$ dollars, or \$6. The percent of savings he saved on 12 pens of the amount he paid is

$$\frac{6}{24} \cdot 100\%, \text{ or } 25\%.$$

3. C

The number of orange flavored drinks in the store = $600 \times 0.25 = 150$.

The number of orange flavored drinks sold on Monday = $150 \times 0.3 = 45$.

Remaining orange flavored drinks = $150 - 45 = 105$.

The number of orange flavored drinks sold on Tuesday is 20% of the remaining orange flavored drinks, which is 105×0.2 , or 21. Therefore, the number of bottles of orange flavored drinks sold in the two days is $45 + 21$, or 66.

4. B

After 15% discount, the price of the tablet is $x - 0.15x$, or $0.85x$. After an additional 12% discount, the price of the tablet is $0.85x - 0.12(0.85x)$, or $0.748x$.

5. D

n = total number of shoes m = the number of brown shoes. So the number of black shoes is $n - m$. The fraction of black shoes in the store is $\frac{n - m}{n}$, so the percent of black shoes in the

store is $(\frac{n - m}{n}) \times 100\%$. This is equivalent to

$$(\frac{n}{n} - \frac{m}{n}) \times 100\%, \text{ or } (1 - \frac{m}{n}) \times 100\%.$$

6. C

If b is increased by 150%, it becomes $b + 1.5b$, or $2.5b$. If c is decreased by 60%, it becomes $c - 0.6c$, or $0.4c$. Multiplying these new values gives $a = 3.2(2.5b \times 0.4c) = 3.2(bc)$.

Therefore, the value is unchanged.

7. D

If 10 books are increased by x percent, then there will be $10 + 10 \times \frac{x}{100}$ books, which is equal to 24.

$$10 + 10 \times \frac{x}{100} = 24$$

$$\Rightarrow 10 \times \frac{x}{100} = 14 \Rightarrow \frac{x}{10} = 14$$

$$\Rightarrow x = 140$$

8. A

Number n is 25 less than 120 percent of itself.

$$n = 1.2n - 25$$

$$-0.2n = -25$$

$$n = \frac{-25}{-0.2} = 125$$

Answers Percents

9. C

The number of blue cars = $500 \times 0.07 = 35$

The number of red cars = $500 \times 0.04 = 20$

Let 35 is n percent greater than 20.

$$\text{Then } 35 = 20 + 20 \cdot \frac{n}{100}.$$

$$35 - 20 = 20 + 20 \cdot \frac{n}{100} - 20$$

$$15 = \frac{1}{5}n$$

$$75 = n$$

The number of blue cars is 75% greater than the number of red cars.

10. 2.7

300% of 0.18 is equivalent to 20% of b .

$$3 \times 0.18 = 0.2b \quad 300\% = 3, \quad 20\% = 0.2$$

$$0.54 = 0.2b \quad \text{Simplify.}$$

$$\frac{0.54}{0.2} = \frac{0.2}{0.2}b \quad \text{Divide each side by } 0.2.$$

$$2.7 = b \quad \text{Simplify.}$$

11. 684

Total amount contributed by five people

$$= \$9,000 \times 5 = \$45,000.$$

The price of the sailboat after 8% tax

$$= \$38,500 + 0.08 \times \$38,500 = \$41,580.$$

The amount that should be refunded

$$= \$45,000 - \$41,580 = \$3,420.$$

Dividing \$3,420 by 5 yields \$684.

Thus \$684 should be refunded to each person.

12. 38.4

Let m = the wholesale cost of MP3.

The selling price of \$72 is 50% more than the wholesale cost.

$$72 = m + 0.5m$$

$$72 = 1.5m$$

$$48 = m$$

The special holiday sale of the MP3 was 20% less than the wholesale cost. Therefore,

The special price of MP3

$$= m - 0.2m$$

$$= 48 - 0.2 \times 48 \quad m = 48$$

$$= 38.4$$

The special sale price of the MP3 was \$38.4.