

Percentages

CollegeBoard Question Bank

Abstract

This exercise sheet contains

- an **Easy** category with 12 questions;
- a **Medium** category with 9 questions;
- a **Hard** category with 8 questions

for you to attempt. A digital copy of this sheet is available for you on [moodle](#). Feel free to utilize [the Question Space on Teams](#) to ask for guidance.

Best,
Omar :)

Percentages

Easy

(1) **bd90f87e** MULTIPLE CHOICE One answer only

A table of the US minimum wage for 6 different years is shown below.

Year	US minimum wage (dollars per hour)
1960	1.00
1970	1.60
1980	3.10
1990	3.80
2000	5.15
2010	7.25

What was the percent increase of the minimum wage from 1960 to 1970?

- a. 62.5%
- b. 60%
- c. 120%
- d. 30%

(2) **8705ecba** MULTIPLE CHOICE One answer only

The cost of a certain shirt is \$20 before a 5% sales tax is added. What is the total cost, including sales tax, to purchase the shirt?

- a. \$21.00
- b. \$20.05
- c. \$25.00
- d. \$20.50

(3) **191d167b**

MULTIPLE CHOICE

One answer only

Last year, 200 students enrolled in an interior design program. This year, the number of students enrolled is 147% of last year's number. How many students are enrolled in the interior design program this year?

- a. 347
- b. 247
- c. 294
- d. 394

(4) 28c6bd8c MULTIPLE CHOICE One answer only

Where Do People Get Most of Their Medical Information?

Source	Percent of those surveyed
Doctor	63%
Internet	13%
Magazines/brochures	9%
Pharmacy	6%
Television	2%
Other/none of the above	7%

The table above shows a summary of 1,200 responses to a survey question. Based on the table, how many of those surveyed get most of their medical information from either a doctor or the Internet?

- a. 912
- b. 926
- c. 865
- d. 887

(5) **7ed0d098** MULTIPLE CHOICE One answer only

Lani spent 15% of her 8 -hour workday in meetings. How many minutes of her workday did she spend in meetings?

- a. 48
- b. 1.2
- c. 15
- d. 72

(6) 2d31caae

MULTIPLE CHOICE

One answer only

Call Ratings

	1 Star	2 Stars	3 Stars	4 Stars	Total
Employee A	16	49	72	8	145
Employee B	4	10	22	34	70
Employee C	8	56	45	16	125
Employee D	22	42	84	12	160
Total	50	157	223	70	500

A supervisor at a call center reviewed 500 calls taken by four employees and rated the employees' performance on each call on a scale from 1 star to 4 stars. The ratings for each employee are shown in the table above. According to the table, to the nearest whole percent, what percent of Employee A's calls received a rating of 1 star?

- a. 32%
- b. 16%
- c. 3%
- d. 11%

(7) **194ae3b1** MULTIPLE CHOICE One answer only

There were approximately 113,000 occupational therapy jobs in the United States in 2012. The Bureau of Labor Statistics has projected that this number will increase by 29% from 2012 to 2022. Of the following, which is closest to the number of occupational therapy jobs the bureau has projected for the United States in 2022?

- a. 145,800
- b. 142,000
- c. 116,300
- d. 115,900

(8) **a8fabad0** MULTIPLE CHOICE One answer only

A waiter receives tips from each customer. On average, the tip is 15% of the customer's bill. At this rate, which of the following is closest to the tip the waiter can expect when a customer has a bill that is \$78.20?

- a. \$10.00
- b. \$12.00
- c. \$8.00
- d. \$14.00

(9) **1c2f50a6** MULTIPLE CHOICE One answer only

During a sale, the original prices of all the items in a clothing store have been reduced by 20%. What is the sale price of a jacket with an original price of \$50 ?

- a. \$40
- b. \$36
- c. \$12
- d. \$30

(10) **048811bd** MULTIPLE CHOICE One answer only

What is 10% of 370 ?

- a. 27
- b. 360
- c. 333
- d. 37

(11) **41b71b4e** MULTIPLE CHOICE One answer only

What number is 20% greater than 60 ?

- a. 50
- b. 75
- c. 72
- d. 132

(12) **6e4a60dd** MULTIPLE CHOICE One answer only

Rita's total bill at a restaurant was \$25.00, including tax. If she left a tip of 20% of the total bill, what was the amount of the tip?

- a. \$4.00
- b. \$3.50
- c. \$4.50
- d. \$5.00

Medium

- (1) **707db2d3** MULTIPLE CHOICE One answer only

For the finale of a TV show, viewers could use either social media or a text message to vote for their favorite of two contestants. The contestant receiving more than 50% of the vote won. An estimated 10% of the viewers voted, and 30% of the votes were cast on social media. Contestant 2 earned 70% of the votes cast using social media and 40% of the votes cast using a text message. Based on this information, which of the following is an accurate conclusion?

- a. Viewers voting by social media were more likely to prefer Contestant 2 than were viewers voting by text message.
- b. If all viewers had voted, Contestant 2 would have won.
- c. Viewers voting by social media were likely to be younger than viewers voting by text message.
- d. If all viewers who voted had voted by social media instead of by text message, Contestant 2 would have won.

(2) **63573fea** MULTIPLE CHOICE One answer only

During the first month of sales, a company sold 1,300,000 units of a certain type of smartphone. During the same month, 15% of the units sold were returned. If sales and the return rate remain the same for each of the next 5 months, about how many units of this smartphone will be returned to the company during this 6-month period?

- a. 975,000
- b. 1,170,000
- c. 6,630,000
- d. 195,000

(3) **8a714fa1** MULTIPLE CHOICE One answer only

Which of the following represents the result of increasing the quantity x by 9%, where $x > 0$?

- a. $1.09x$
- b. $x + 0.09$
- c. $0.09x$
- d. $x + 9$

(4) **8e2e424e** MULTIPLE CHOICE One answer only

The number k is 36% greater than 50 . If k is the product of 50 and r , what is the value of r ?

- a. 3.6
- b. 36
- c. 0.36
- d. 1.36

(5) **8cbf1415** MULTIPLE CHOICE One answer only

In a group, 40% of the items are red. Of all the red items in the group, 30% also have stripes. What percentage of the items in the group are red with stripes?

- a. 75%
- b. 12%
- c. 70%
- d. 10%

(6) **96a45430** MULTIPLE CHOICE One answer only

A number n is increased 6%. If the result is 318 , what is the value of n ?

- a. 337
- b. 199
- c. 300
- d. 299

(7) **b2f6f17d** MULTIPLE CHOICE One answer only

A customer's monthly water bill was \$75.74. Due to a rate increase, her monthly bill is now \$79.86. To the nearest tenth of a percent, by what percent did the amount of the customer's water bill increase?

- a. 5.1%
- b. 5.2%
- c. 4.1%
- d. 5.4%

(8) **566759ef**

MULTIPLE CHOICE

One answer only

Thomas installed a new stove in his restaurant. At the time of installation, the stove had a value of \$800. Thomas estimates that each year the value of the stove will depreciate by 20% of the previous year's estimated value. What is the estimated value of the stove exactly 2 years after Thomas installed it?

- a. \$512
- b. \$556
- c. \$640
- d. \$480

Hard

- (1) **954943a4** MULTIPLE CHOICE One answer only

Jennifer bought a box of Crunchy Grain cereal. The nutrition facts on the box state that a serving size of the cereal is $\frac{3}{4}$ cup and provides 210 calories, 50 of which are calories from fat. In addition, each serving of the cereal provides 180 milligrams of potassium, which is 5% of the daily allowance for adults. If p percent of an adult's daily allowance of potassium is provided by x servings of Crunchy Grain cereal per day, which of the following expresses p in terms of x ?

- a. $p = 0.5x$
- b. $p = (0.05)^x$
- c. $p = 5x$
- d. $p = (1.05)^x$

(2) 0ea56bb2

MULTIPLE CHOICE

One answer only

Year	Subscriptions sold
2012	5,600
2013	5,880

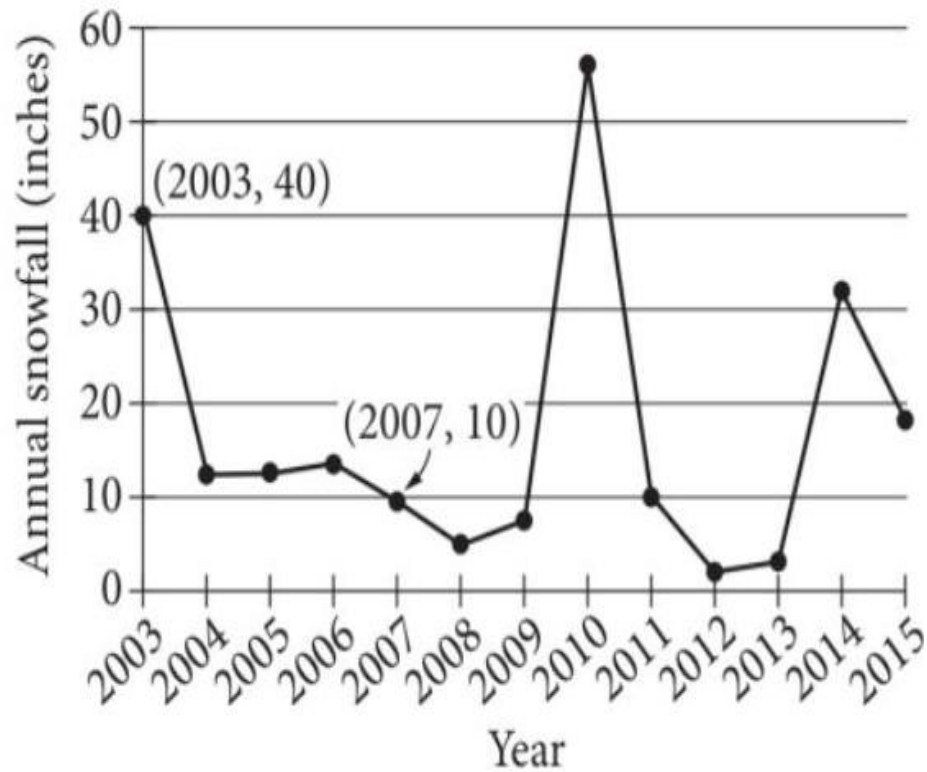
The manager of an online news service received the report above on the number of subscriptions sold by the service. The manager estimated that the percent increase from 2012 to 2013 would be double the percent increase from 2013 to 2014. How many subscriptions did the manager expect would be sold in 2014 ?

- a. 6,440
- b. 6,027
- c. 6,020
- d. 6,468

- (3) **65c49824** SHORT ANSWER Case-Insensitive

A school district is forming a committee to discuss plans for the construction of a new high school. Of those invited to join the committee, 15% are parents of students, 45% are teachers from the current high school, 25% are school and district administrators, and the remaining 6 individuals are students. How many more teachers were invited to join the committee than school and district administrators?

(4) 0231050d SHORT ANSWER Case-Insensitive



The line graph shows the total amount of snow, in inches, recorded each year in Washington, DC, from 2003 to 2015. If $p\%$ is the percent decrease in the annual snowfall from 2003 to 2007, what is the value of p ?

(5) **67c0200a** SHORT ANSWER Case-Insensitive

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 ?

(6) **55818046** MULTIPLE CHOICE One answer only

According to the 2010 Census, the adult population aged 18 years or greater of the United States in 2010 was 234, 564, 071. In 2010, a survey was conducted among a randomly chosen sample of adults aged 18 years or greater in the United States about their preference to live in a warm climate or a cool climate. The table below displays a summary of the survey results.

Climate Preferences

	Warm	Cool	No preference	Total
18 - 35 years old	295	168	45	508
36 - 50 years old	246	123	41	410
51-65 years old	238	117	48	403
Greater than 65 years old	137	78	64	279
Total	916	486	198	1,600

Which of the following is closest to the difference between the percentage of adults aged 18-50 years who responded "warm" and the percentage of adults aged 51 years or greater who responded "warm"?

- a. 18 %
- b. 10%
- c. 5 %
- d. 4 %

(7) **8c5dbd3e** SHORT ANSWER Case-Insensitive

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

(8) **34f8cd89** MULTIPLE CHOICE One answer only

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%

(9) **8213b1b3** SHORT ANSWER Case-Insensitive

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?

Total of marks: 29