



# MATHS

## BOOKS - PRINCETON MATHS (ENGLISH)

### ARITHMETIC

#### Quick Quiz 1

1. Which of the following could be a factor of  $n(n+1)$ , if  $n$  is a positive integer less than 3?

A. 3

B. 4

C. 5

D. 9

**Answer: A**



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$$2. f(x) = x^4 - 25x^2$$

$$k(x) = \frac{1}{x^3 + 3x^2 - 10x}$$

Which of the following expressions is equivalent to  $f(x) \cdot k(x)$ , for  $x > 2$ ?

A.  $\frac{1}{x - 2}$

B.  $\frac{x - 5}{x - 2}$

C.  $\frac{x(x - 5)}{x - 2}$

D.  $\frac{x(x + 5)}{x - 2}$

**Answer: C**



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3. An art teacher has a jar containing  $b$  buttons to distribute to her class for a project. In order to give each child in the class 6 buttons, she will need 18 more buttons. If she gives each child 5 buttons, she will have 4 left over. How many children are in the class?

A. 17

B. 19

C. 22

D. 24



**Answer: C**



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## Quick Quiz 2

1. If  $\frac{9}{10}y - \frac{7}{10}y = \frac{4}{2} - \frac{8}{15}$ , what is the value of  $y$ ?



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2. In a jar of cookies, there is  $\frac{1}{6}$  probability of randomly selecting an oatmeal-raisin cookie and a  $\frac{1}{8}$  probability of selecting a sugar cookie. If the remaining cookies are all chocolate chips cookies, then which one of the following could be the number of cookies in the jar?

A. 16

B. 20

C. 24

D. 32

**Answer: C**



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3. An a track meet,  $\frac{2}{5}$  of the first-place finishers attended southport hiegh school, and  $\frac{1}{2}$  of them were girls. If  $\frac{2}{9}$  of the first place finishers who did NOY attend southport high school were girls, What fraction pert of

the total number of first-place finishers were boys?

A.  $\frac{1}{9}$

B.  $\frac{2}{15}$

C.  $\frac{3}{5}$

D.  $\frac{2}{3}$

**Answer: D**



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1. If  $0.2p = 4$ , what is the value of  $4p$ ?

A. 2

B. 8

C. 40

D. 80

**Answer: D**



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2. For positive integers  $y$  and  $z$ , if

$z^2 = y^3$  and  $y^2 = 16$ , what is the value of  $\frac{y}{z}$ ?

A. 0.2

B. 0.4

C. 0.5

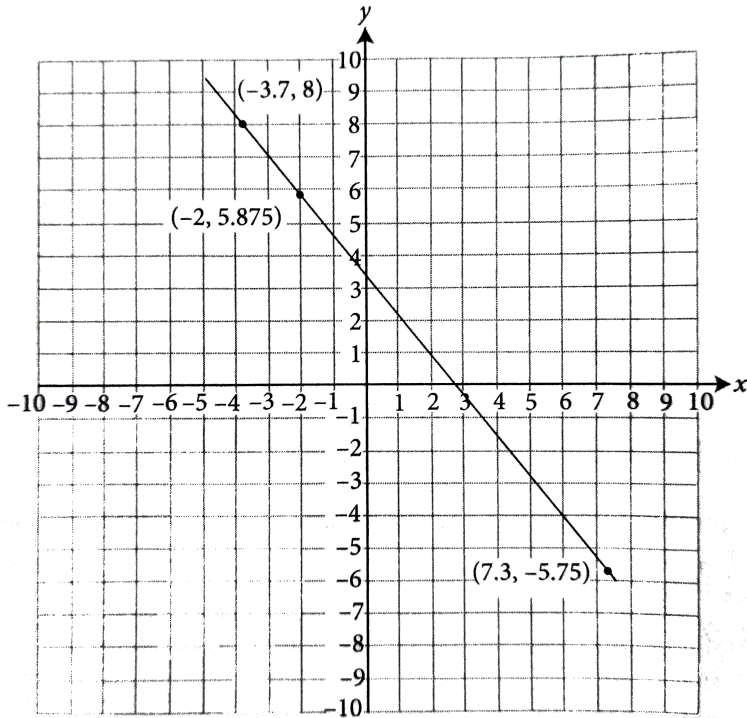
D. 2

**Answer: C**



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3. Line  $l$  is shown in the  $xy$ -plane below.



What is the slope of line  $l$ ?

A.  $-1.25$

B.  $0.80$

C.  $-0.80$

D. 1.25

**Answer: A**



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## Quick Quiz 4

1. If 20% of  $p$  is 10, what is 10% of  $p$ ?

A. 2

B. 4



C. 5

D. 8

**Answer: C**



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2. Mable agreed to pay the tax and tips for dinner at a restaurant with her four friends. Each of the friends paid an equal part of the cost of the dinner, which was \$96. If the tax and tips together were 20% of the cost of

the meal, Mabel paid how much less than any one of her friends?

A. 2.4

B. 4.8

C. 19.2

D. 24.4

**Answer: c**



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3. If 200% of 40% of  $x$  is equal to 40% of  $y$ , then  $x$  is what fraction of  $y$ ?

A. 0.1

B. 0.2

C. 0.5

D. 0.8

**Answer: C**



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## Quick Quiz 5

**Adore-a-Bubble Soda Company's Sales**

<b>Flavor</b>	<b>1980</b>	<b>2000</b>
Snappy Apple	50%	50%
Raspberry Rush	25%	25%
Fresh Fizz	10%	12%
Cranberry Crackle	12%	10%
Purple Pop	3%	3%
Total	100%	100%

1.

The table above shows the Adore-a-Bubble Soda Company's sales for 1980 and 2000. The company sold 200 trillion cans of soda in 1980. If the company sold 40 trillion more cans of soda in 2000 than it did in 1980, then for

which flavor did the number of cans of soda increase by 20% from 1980 to 2000?

- A. Snappy Apple
- B. Raspberry Rush
- C. Fresh Fizz
- D. Cranberry Crackle

**Answer: A**



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2. A store owner buys pound of grapes for 80 cents and sells it for a dollar. What percent of the selling price of grapes is the store owner's profit?

A. 0.2

B. 0.25

C. 0.4

D. 0.8

**Answer: A**



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3. On the first test of the semester, Barbara scored a 60. On the first test of the semester, Barbara scored a 75. By what percent did Barbara's score improve?

A. 0.15

B. 0.18

C. 0.2

D. 0.25

**Answer: D**



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## Quick Quiz 6

1. If  $\frac{x}{y} = \frac{4}{3}$  and  $\frac{x}{k} = \frac{1}{2}$ , what is the value of  $\frac{k}{y}$ ?

A.  $\frac{3}{8}$

B.  $\frac{2}{3}$

C.  $\frac{3}{2}$



D.  $\frac{8}{2}$

**Answer: D**



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2. The junior class at Mooreland High is composed of boys and girls in a ratio of 5:1. All of the following could be the number of students in the junior class EXCEPT.

A. 24

B. 42

C. 54

D. 62

**Answer: D**



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**3.** In a certain ocean region, the ratio of sharks to tuna to damselfish to gupples is 1 to 3 to 5 to 6. If there are 1,500 total fish in that region, how many of the fish are sharks?

A. 15

B. 100

C. 150

D. 450

**Answer: B**



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**Quick Quiz 7**

1. Laura can solve 6 math questions in 12 minutes. Working at the same rate, how many minutes would it take Laura to solve 5 math questions?

A. 6

B. 9

C. 10

D. 11

**Answer: C**



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2. The length of time in hours that certain battery will last is inversely proportional to the length of time in years that the battery spends in storage. If the battery spends 3 years in storage, it will last 25 hours, so how long must the battery have been in storage if it will last 15 hours?

A. 1.75 years

B. 5 years

C.  $41\frac{2}{3}$  years

D. 75 years

**Answer: B**



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3. A factory produced 15 trucks of the same model. If the trucks had a combined weight of  $34\frac{1}{2}$  tons, how much, in pounds, did one of the trucks weight? (One ton= 2,000 pounds)

A. 2, 200

B. 4, 500

C. 4, 600

D. 5, 400

**Answer: C**



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**Quick Quiz 8**

1. The average of 3 numbers is 22, and the smallest of these numbers is 2. What is the value of the other two numbers if they are equal?

A. 22

B. 30

C. 32

D. 64

**Answer: C**



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2. Caroline scored 85, 88, and 89 on three of her four history tests. If her average score for all tests was 90, what did she score on her fourth test?

A. 90

B. 93

C. 96

D. 98

**Answer: D**



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3. The average of 8, 13,  $x$ , and  $y$  is 6. The average of 15, 9,  $x$  and  $x$  is 8. What is the value of  $y$ ?

A.  $-1$

B. 0

C. 4

D. 6

**Answer: A**



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## Quick Quiz 9

1. Set  $Q = \{10, 2, 3, 5, 1, 7, 5, 2\}$

If smallest and largest numbers in Set  $Q$  are removed, what is the median of Set  $Q$ ?

A. 3.5

B. 4

C. 5

D. 6

**Answer: B**



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## High Temperatures

Temperature	Number of days
22	2
25	2
28	3
31	0
34	4
37	1
40	2

2.

Janet recorded the number of days certain high temperatures were reached over a 14 day period. She later decided to add data for one more day. If the high temperature on that day was 37, what is the median temperature for the set of days?

A. 26.5

B. 28

C. 31

D. 34

**Answer: D**



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Push-ups	Frequency
20	3
21	8
23	7
24	5
26	3
29	2
34	1
39	1

3.

The table above shows the distribution of the number of push ups completed by 30 people in a high school gym class. Which of the following is true the mean, mode, and the range of the numbers of push ups completed?

A. Mean < Range < mode

B. Mode < Range < Mean

C. Range < Mean < Mode

D. Range < Mode < Mean

**Answer: D**



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**4.** If a set of 9 randomly selected number is generated, which one of the following changes **CANNOT** affect the value of the median?



A. Subtracting 2 from each number

B. Decreasing the largest number only

C. Decreasing the smallest number only

D. Increasing the largest and smallest numbers only

**Answer: C**



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**Quick Quiz 10**

Language	Gender		Total
	Boys	Girls	
French	5	11	16
Spanish	8	6	14
Total	13	17	30

1.

The table above shows the distribution of the gender and the language studied of the 30 students in an after-school language program.

If a student is chosen at random, what is the probability that the student will be either a boy studying French or a girl studying Spanish?

A.  $\frac{3}{30}$

B.  $\frac{10}{30}$

C.  $\frac{11}{30}$

D.  $\frac{13}{30}$

**Answer: C**



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2. In a drawer that contains only black, blue, and brown socks, the probability of selecting a black pair of socks is  $\frac{3}{8}$ , and there are  $\frac{1}{3}$  as many blue pairs of socks as there are black pairs of socks. If there are 12 brown pairs of

socks, how many pairs of socks are there in the drawer?

A. 16

B. 24

C. 32

D. 48

**Answer: B**



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3. Janice has 3 belts (one blue one red, and one green), 3 bracelets (one blue, one red, and one green), and 3 scarves (one blue, one red, and one green). If Janice wants to create an outfit containing a belt, a bracelet, and a scarf such that each item is a different color, how many possible outfits can she create?

A. 6

B. 9

C. 21

D. 27

**Answer: A**



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## Quick Quiz 11

1. The number of bacteria in a colony is estimated over the course of 9 days, as shown in the table below.

Time (days)	Number of Bacteria
0	50
3	500
6	5,000
9	50,000

Which of the following best describes the relationship between time and the estimated number of bacteria over these 9 days?

- A. Linear decrease
- B. Linear increase
- C. Exponential decay

## D. Exponential growth

**Answer: D**



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2. The population,  $p$  of a town can be modeled by the equation  $P = 750(1.15)^d$ , where  $d$  is the number of decades after the year 1980. Which of the following equations can be used to model the population of the town  $y$  years after 1980?



A.  $P = 750(4.046)^y$

B.  $P = 750(1.15)^{10y}$

C.  $P = 750(1.15)\left(\frac{y}{10}\right)$

D.  $P = 750(1.015)^{10y}$

**Answer: C**



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**3.** The balance of a saving account at a certain bank is \$ 280 today. The customer knows that the balance will gain 4 percent interest each

year for the next 2 years. The customer uses the equation  $B = 280(x)^y$  to model the balance, B of the account after y years. to the nearest dollar, what does the customer estimate the value of the account will be at the end of two years if no money is deposited or withdraw ? (Note: Disregard the \$ sign when gridding your answer.)



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