1. A die is rolled and then a coin is tossed. What is the probability that the die shows an even number AND the coin shows a tail?

select $\frac{1}{5}$

select $\frac{1}{2}$

select $\frac{1}{3}$

select $\frac{1}{6}$

select $\frac{1}{4}$

2. Daria has 5 plates: 2 are green, 1 is blue, 1 is red, and 1 is both green and blue. What is the probability that Daria randomly selects a plate that has blue OR green on it?
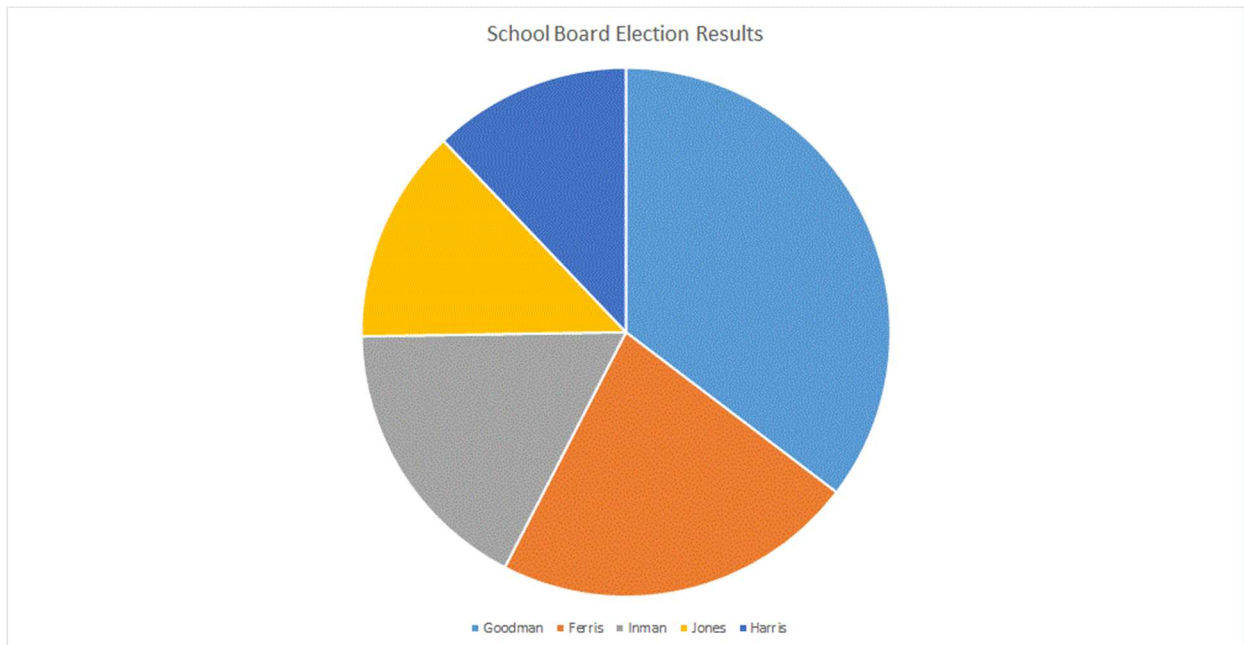
select $\frac{1}{5}$

select $\frac{4}{5}$

select $\frac{3}{5}$

select 1

select $\frac{2}{5}$

School Board Election Results

Goodman   Ferris   Inman   Jones   Harris

Light blue: Goodman

Orange: Ferris

Gray: Inman

Yellow: Jones

Dark blue: Harris

3. Refer to the diagram. If 3,145 people voted in the school board election, (the results of which are represented in the diagram), then approximately how many people voted for Inman?

select

1,050

select

790

select

630

select

390

select

910

4. A line which cuts another line segment into two equal parts is called a _____.

select

bisector

select

parallel line

select

transversal

select

midpoint

select

5. Abe is a big gambler. He is equally likely to win, lose, or break even. When he loses, his loss is 1000. When he wins, he either makes 500 or 1000 with equal probability. How much money does Abe win or lose on average?

select

Abe loses $100.

select

Abe breaks even.

select

Abe wins $83.

select

Abe wins $200.

select

Abe loses $83.

6. Wally has a $500 gift card that he wants to spend at the store where he works. He gets a 25% employee discount, and the sales tax rate is 6.45%. How much can Wally spend *before the discount and tax* using only his gift card? (Round to the nearest cent.)

select

None of the other answers are correct.

select

$584.69

select

$626.27

select

$508.06

select

$665.31

7. Vanessa purchased an mp3 player, originally priced at $290, but discounted by $27. Approximately what percent discount did Vanessa receive on the mp3 player?

select

2%

select

5%

select

9%

select

21%

select

8. The population of City X increased from 2 million in the year 2000 to 2.5 million in 2015 and the gross domestic product of the city in 2000 was 3/8 less than that in 2015. What was the approximate percent change, rounded to the nearest integer if required, in the per capita gross domestic product of the city from 2000 to 2015?

A22% decrease

B22% increase

C28% increase

D53% increase

E113% increase

9.

A baseball travels at a rate of 75 ft/sec. How long does it take to reach a fence that is 110 yards away?

select

4.40 seconds

select

5.30 seconds

select

5 seconds

select

3.75 seconds

select

1.47 seconds

10.

It takes Jim 30 minutes to drive to work and 45 minutes to drive home from work. What is Jim's average driving speed in miles per hour if Jim lives 25 miles from work?

select

40 mph

select
75 mph

select
50 mph

select
45 mph

select
35 mph

11.

If 2 machines working at the same rate create 88 widgets in 4 minutes, how many widgets can 5 machines make in 2 minutes, working at the same rate?

select
220 widgets

select
44 widgets

select
176 widgets

select
55 widgets

select
110 widgets

12.

The inlet pipe leading into a water tank can fill the tank in 45 minutes; the drain can empty the tank in 25 minutes.
One day while draining the tank, someone left the inlet pipe on.
To the nearest minute, how long did it take for the tank to drain completely?

select
56 minutes

select
35 minutes

select
70 minutes

112 minutes

140 minutes

13.

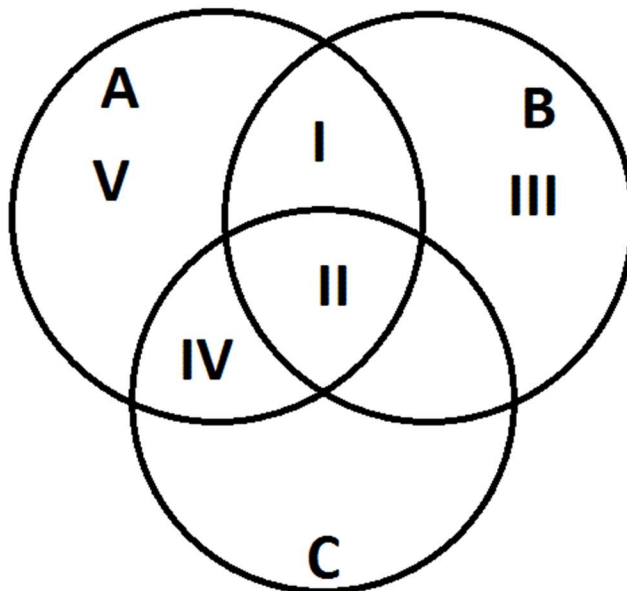Mark will hire 5 of the 8 job applicants he interviews. In how many different ways can he do this?

336

385

56

40

40,320

U

A

B

I

V

III

II

IV

C

14. Refer to the Venn diagram. Let universal set U be the set of all natural numbers, N. Let A be the set of all multiples of 3; let B be the set of all perfect squares; let C be the set of all perfect cubes. Which region of the Venn diagram contains the number $1,728$?

select

III

select

IV

select

V

select

II

select

I

15.

Jessica deposits $5,000 in a savings account at 6% interest. The interest is compounded monthly. How much will she have in her savings account after 5 years?

select

$6500

select

$6744

select

$2744

select

$1500

select

None of the other answers are correct.

16. J

essica deposits $5,000 in a savings account that collects 6% simple interest. How much money will she have accumulated after 5 years?

select

None of the other answers are correct.

select

$6500

select

$1500

select

$9000

select

$8500

17.

If it takes Sally 3 hours to drive q miles, how many hours will it take her to drive r miles at the same rate?

select

$$\frac{r}{3q}$$

select

$$\frac{3r}{q}$$

select

$$\frac{3}{qr}$$

select

$$\frac{3q}{r}$$

select

$$\frac{qr}{3}$$

18.

A cat runs at a rate of 12 miles per hour. How far does he run in 10 minutes?

select

$10\ miles$

select

$1\ mile$

select

None of the other answers are correct.

19.

Find the equation of the line that is perpendicular to the line connecting the points $(0,-4)$ and $(-1,-7)$.

select

the line between points $(0,0)$ and $(2,2)$

select

$y = -4x + 8$

select

the line between the points $(3,0)$ and $(-3,2)$

select

$y = 3x - 1$

select

20.

In the xy-plane, point (a,b) lies on a circle with center at the origin. The radius of the circle is 5. What is the value of $a^2 + b^2$?

select

16

select

25

select

10

select

32

select

5

21.

Describe the circle given by the equation $(x+3)^2 + y^2 = 2$.

select

center at $(-3,0)$ and radius $= 2-\sqrt{}$

select

center at $(3,0)$ and radius $= 2-\sqrt{}$

select

center at $(0,3)$ and radius $= 2$

select

center at $(0,0)$ and radius $= 2$

select

center at $(0,-3)$ and radius $= 2-\sqrt{}$

22.

Which of the following pairs of lines are parallel?

select

x=3 and y=−4

select

y=2x−4 and y=3x+5

select

y=3x+2 and y=3x−2

select

3x−2y=5 and 2x+3y=4

select

5x+4y=1 and 4x+5y=2

23.

One line includes the points (A,B) and $(1,3)$; a second line includes the points $(-A,-B)$ and $(2,5)$. If these lines are parallel, what is the value of A ?
1) $B=11$
2) $B=15-A$

select

EITHER statement ALONE is sufficient to answer the question.

select

BOTH statements TOGETHER are sufficient to answer the question, but NEITHER statement ALONE is sufficient to answer the question.

24.

Find the equation of a line that is parallel to $4x-2y=5$ and passes through the point $(4,1)$.

select

$y = -2x - 7$

select

$y = 2x - 7$

select

None of the answers are correct.

select

$y = -2x + 7$

select

$y = 2x + 7$

What is the distance between the points $(2,5)$ and $(7,17)$?

select

5

select

10

select

13

select

$25-\sqrt{}$

select

17