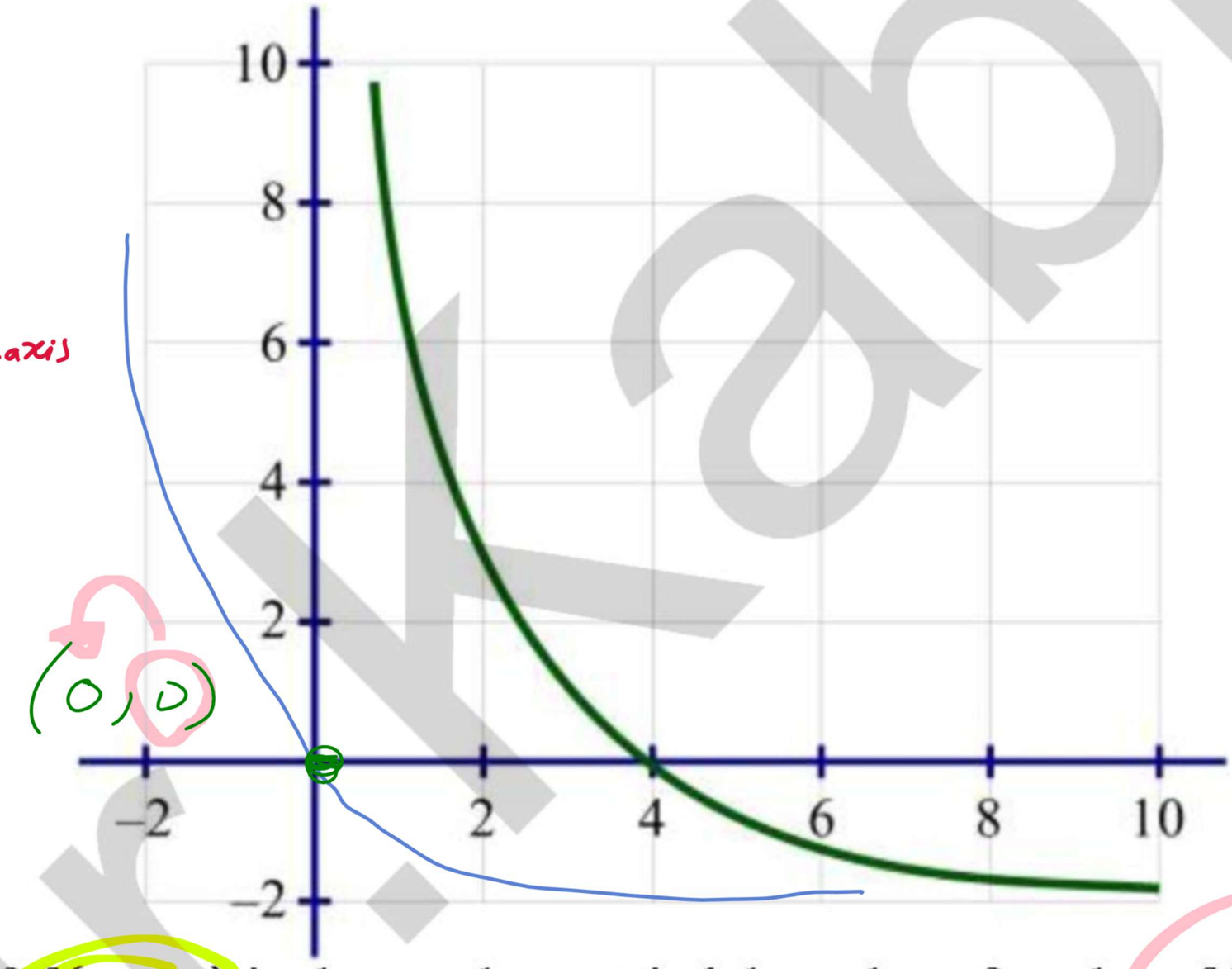
13) In the xy-plane above $x^2 + y^2 < r^2$ is shown but line $y \leq 2x + 1$ not shown. Which of the following is true ?

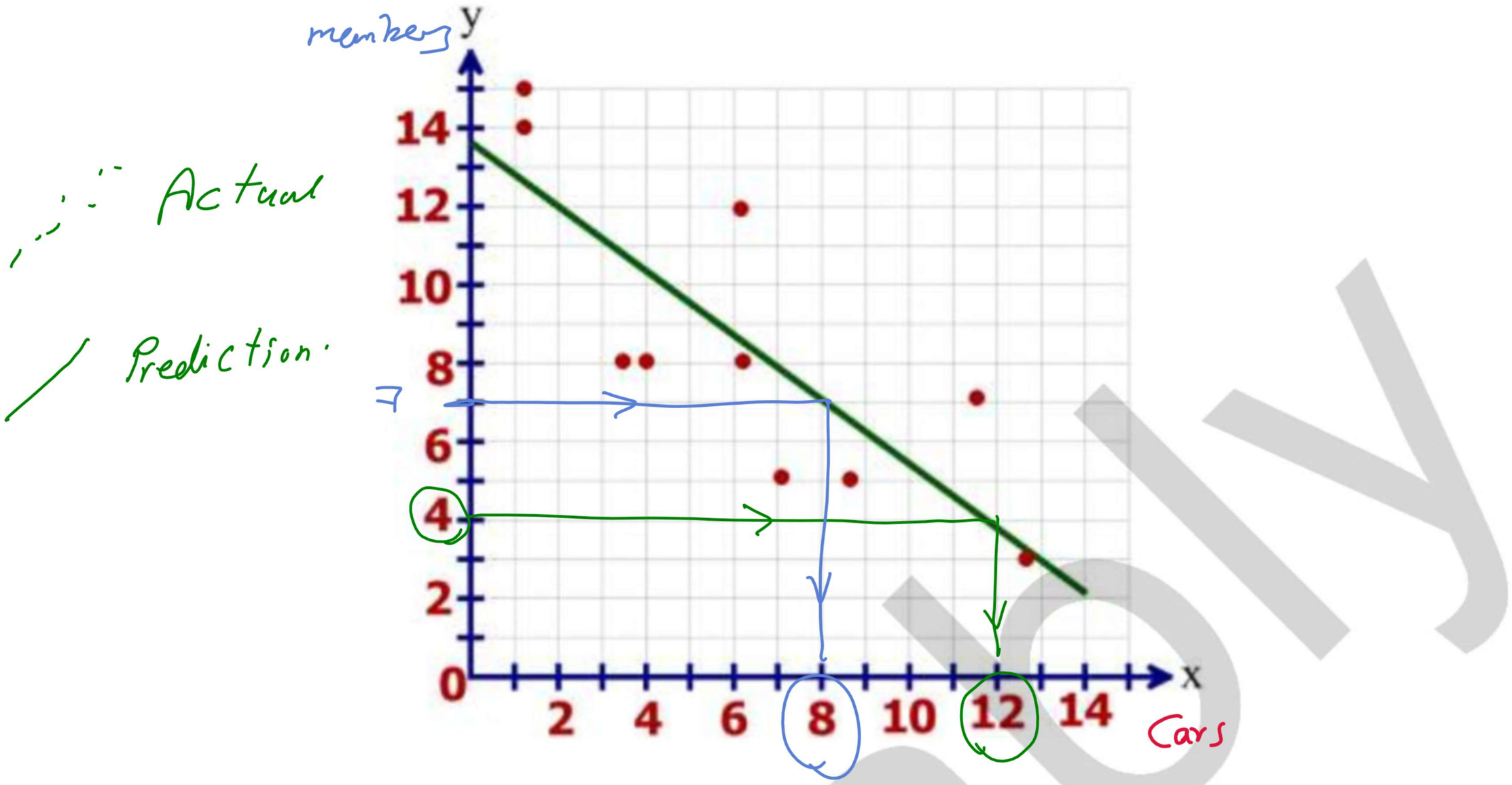
A) All points on the circle are included in the interval
B) Less than half the circle is included
C) More than half the circle is included
D) The origin is not included

$f(x) + a$ ↑
$f(x) - a$ ↓
$f(x+a)$ ←
$f(x-a)$ →
$-f(x)$ reflect x-axis



14) The graph of $f(x-4)$ is shown above. Find the value of x when $f(x) = 0$

A) 4
B) -7
C) 0
D) 3



15) In the graph above *x*-axis represents number of cars that each family own, and *y*-axis represents number of members in each family.

which of the following must be true ?

A) When number of cars increases in each, number of members of each family decreases

B) When number of cars decreases in each, number of members of each family decreases

C) Both increase together

D) No change

16) ***What is the difference between the Predicted number of cars of the families that has 4 and 7 members each ?***

A) 1

B) 2

C) 3

D) 4

12 - 8 = 4

$\sqrt{x-4} = x$

17) Which of the following is the value of x ?

A) 0 $\sqrt{0-4} = \sqrt{-4}$

B) 10 $\sqrt{10-4} = \sqrt{6} = 10$ x

C) 4 $\sqrt{4-4} = \sqrt{0} = 0 = 4$ xx

D) No solution

18) If $f(x) = 3x + 2$, $g(x) = 3 + f(x)$. Find $g(3)$

3(3) + 2 = 11

A) 17

B) 14

C) 11

D) 19

$3 + f(3)$

$3 + 11$

14

19) Which of the following are solutions to the equation

$$(x-2)^2 = \frac{16}{25}$$

$\pm\sqrt{\frac{16}{25}}$

A) $x = \sqrt{\frac{4}{5}}$

B) $x = \frac{6}{5}$

C) $x = \frac{-4}{5}$

D) $x = -\frac{14}{5}$

$x - 2 = \pm\frac{4}{5}$

$x - 2 = \frac{4}{5}$

$x = \frac{4}{5} + \frac{2 \cdot 5}{1 \cdot 5}$

$\frac{4}{5} + \frac{10}{5} = \frac{14}{5}$

$x - 2 = -\frac{4}{5}$

$x = -\frac{4}{5} + \frac{2 \cdot 5}{1 \cdot 5}$

$= -\frac{4}{5} + \frac{10}{5} = \frac{6}{5}$

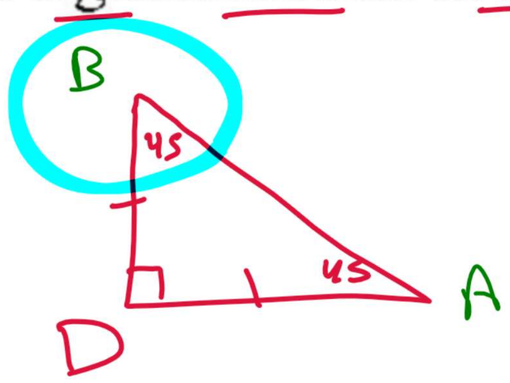
20) Triangle ABD is right isosceles at D . What is the measure of angle B ?

A) 90

B) 30

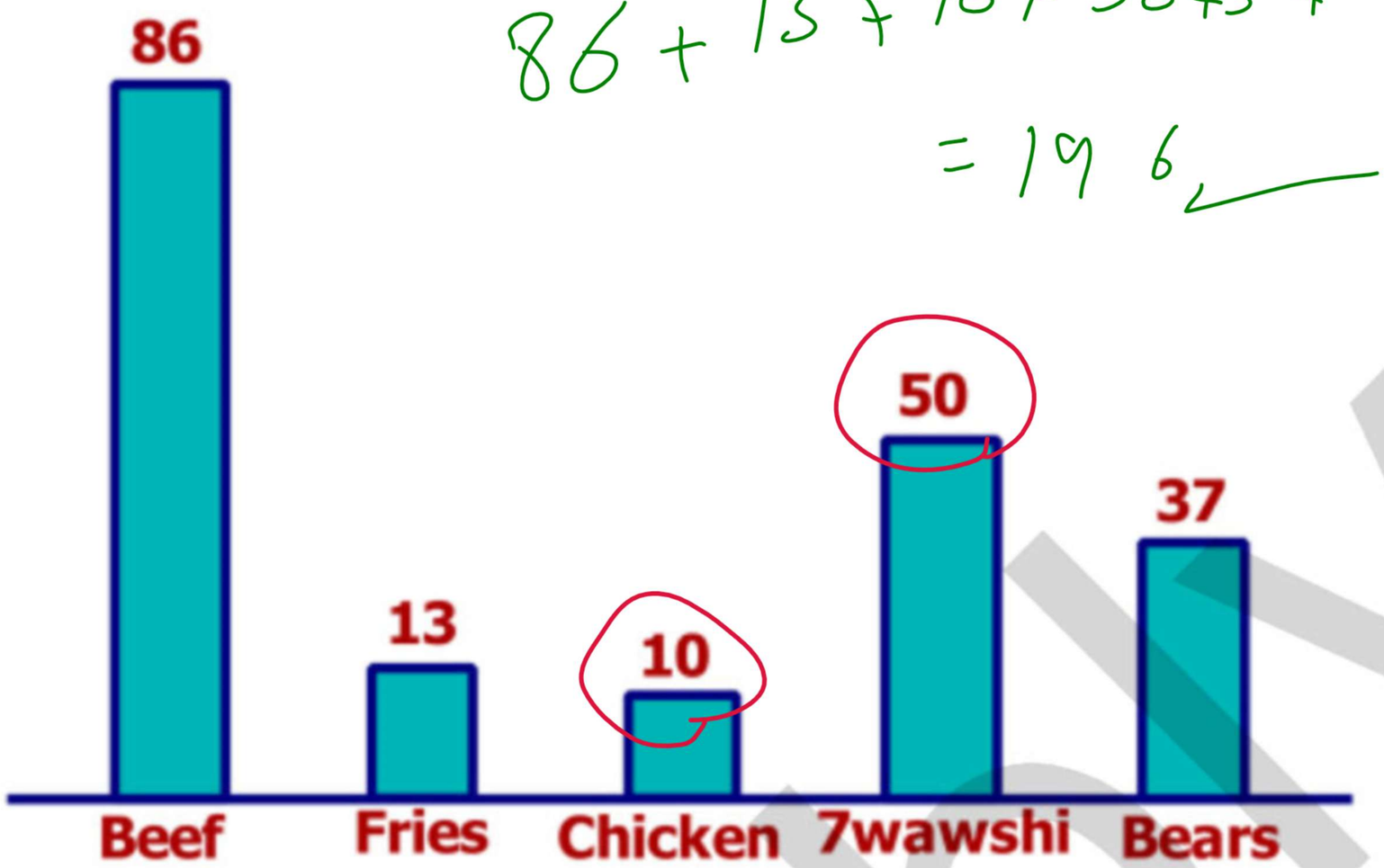
C) 45

D) 60



$86 + 13 + 10 + 50 + 37$

$= 196$



1) The graph above represents the number of sandwiches ordered in a restaurant. What is the ratio of 7wawshi to chicken ?

A) 5:1
B) 2:11
C) 1:5
D) 2:21

$\frac{50}{10} = \frac{5}{1}$

2) ***Which of the following must be true*** ?

I. The total number of sandwiches sold is 196 during that day.
II. The number of orders from 3 to 4 pm is about 56% of the ones from 1 to 3 pm
III. The least sold is Fries

A) **I** only
B) **II** only
C) **II** and **III** only
D) **I, II,** and **III**

% change = $\frac{N-O}{O} \times 100$

$= \frac{1416.71 - 1400}{1400} \times 100$

$= 1.2$

Invest	Money
Initial investment	1400$
after adding a % interest	b
after reducing 3$	1413.71
after adding a % interest	d
after withdraw 700$	e

$d = 101.2\% \times 1413.71$

$= 1.012 \times 1413.71 = 1430$

3) What is the interest ?

A) 1
B) 2
C) 1.2
D) 14

4) What are the values of d and b ?

A) 1.2 and 730.71
B) 733.71 and 1419.71
C) 1430.7 and 1416.71
D) 1419.71 and 733.71

5) How much left after the withdrawal amount ?

A) 1.2
B) 1433. 71
C) 1419.71
D) 730.71

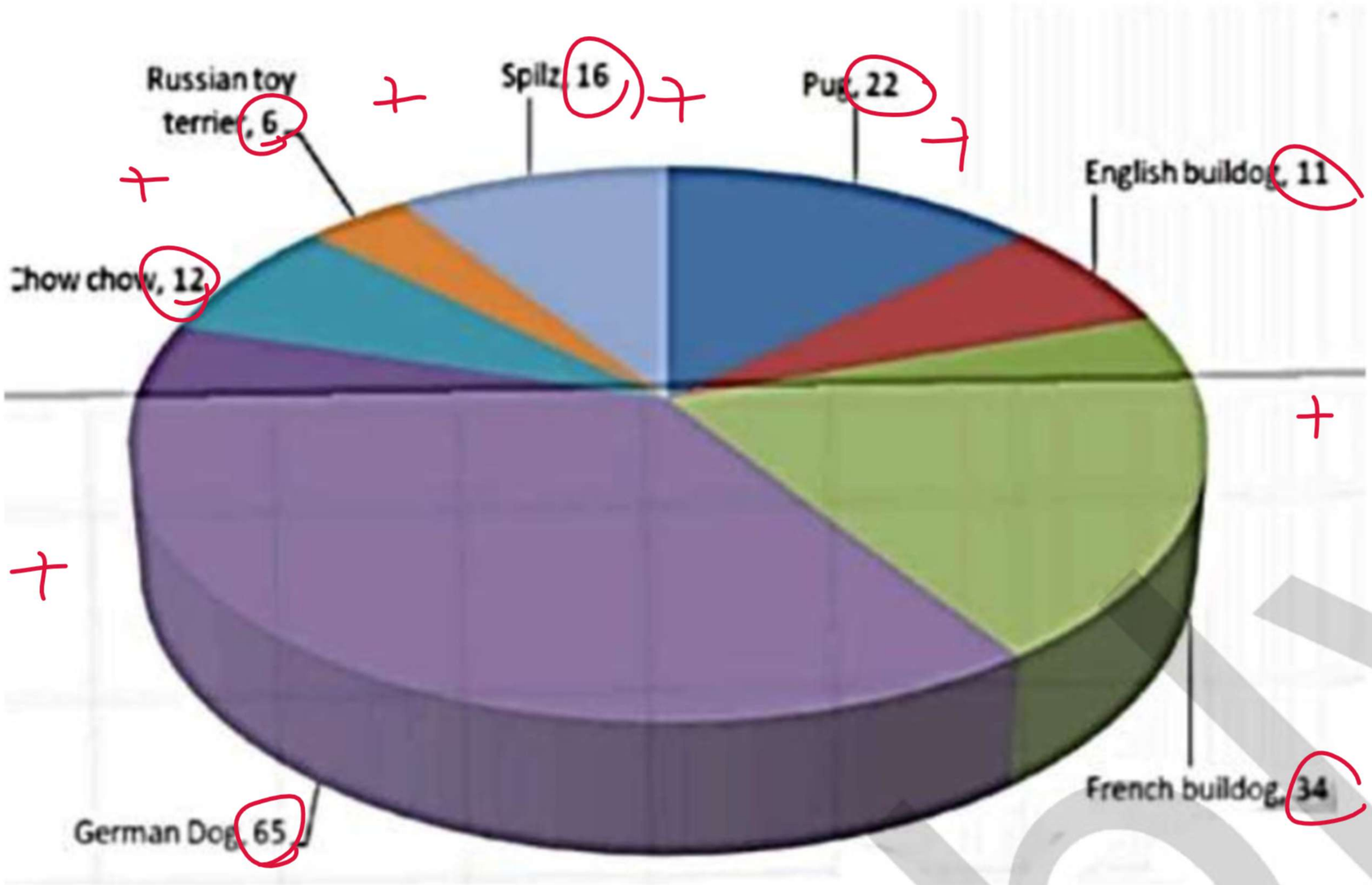
$e = 1430 - 700 = 730$

$a = 1.2$

$b = 1416.71$

$d = 1430$

$e = 730$



6) A pet organization classified the types of dogs in a certain country as shown above. If 66 were sheltered and half of the remaining given to families. How many dogs left?

A) 100
B) 25
C) 50
D) 33

remaining = 166 - 66
= 100
left 50
50

7) A pet organization classified the types of dogs in a certain country as shown above. What is the ratio of types French to pug?

A) 11/17
B) 10/16
C) 17/11
D) 16/10

$\frac{F}{P} = \frac{34}{22} = \frac{17}{11}$

$6x - y = \frac{1}{2}$

$6^2 = 36$

$6^3 = 216$

8) If $12x - 2y = 1$, then $\frac{216^{2x}}{6^y} =$

A) $\sqrt{6}$

B) 10

C) 6

D) 1

$x = 2$

$12(2) - 2y = 1$

shift solve

$y = 11.5$

$\frac{216^{2(2)}}{6^{11.5}} = 2.44$

$\frac{216^{2x}}{6^y} = \frac{(6^3)^{2x}}{6^y} = \frac{6^{6x}}{6^y} = 6^{6x-y} = 6^{\frac{1}{2}} = \sqrt{6}$

9) In a certain country. The students that are allowed to vote must be at least 21 years old. For every 2 students more than or equal to 21, there are 5 students less 21 years old. If there are 952 students. Find the number of students that allowed to vote.

A) 190

B) 272

C) 408

D) 680

21 : Total

2 : 7

5 : 952

$\frac{2 \times 952}{7} = 272$

10) If $x^3 + 2x^2 + 4x + 8 = (2x^2 + bx - c)(ax + 1)$ is true for all values of x.
Which of the following has the greatest value ?

$\frac{1}{2} + 2|-8|$ 16.5

A) $a + 2|c|$

B) $|ac - b|$

C) $b - |2c|$

D) $2b - |c|$

$1x^3 = 2ax^3$

$1 = 2a$

$\frac{1}{2} = a$

$8 = -c$

$-8 = c$

$4x = bx - cax$

$4x = bx - (-8)(\frac{1}{2})x$

$4x = bx + 4x$

$0 = bx$

$0 = b$