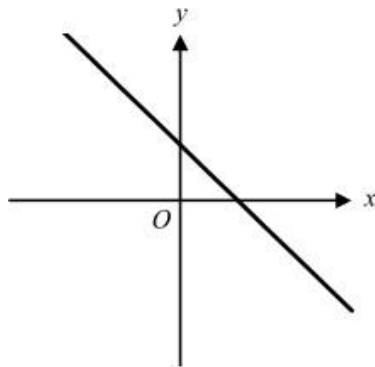


Section 2

1. If $p = 5.5$, what is the value of $|p| - |1 - p|$?

- (A) 1.5
- (B) 1
- (C) 5.5
- (D) 9.5



2. Which of the following equations best describes the function in the figure above?

- (A) $y = x + 2$
- (B) $y = x - 2$
- (C) $y = -x + 2$
- (D) $y = -x - 2$

3. If $(3x + 2)(5x + 1) = ax^2 + bx + 2$, what is the value of $a - b$?

- (A) 2
- (B) 8
- (C) 22
- (D) 28

4. Leo is manufacturing rulers. If the ruler differs from the expected length by 1 mm, he needs to throw it away. What absolute value inequality represents the rulers that Leo does NOT throw away?

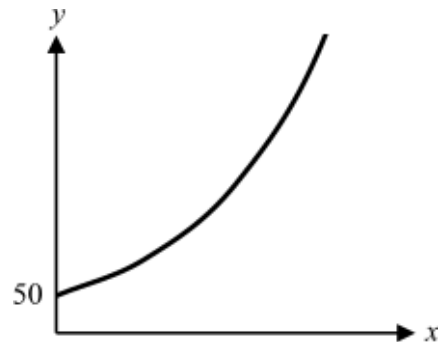
- (A) $|x - 1| \leq 0.01$
- (B) $|x - 1| \leq 0.001$
- (C) $|x - 1| \geq 0.01$
- (D) $|x - 1| \geq 0.01$

5. $x^2 = 0.1$, what is the value of x^{-4} ?

- (A) 1
- (B) 10
- (C) 100
- (D) 1000

6. If $4n(n + 8) = 36$, what is the product of the two solutions to this equation?

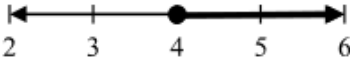
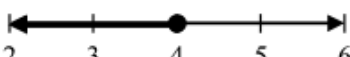
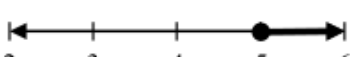
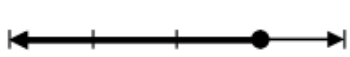
- (A) -1
- (B) -9
- (C) 0
- (D) 9



7. Every year, the population of Dwarf lop rabbits double in a certain country, as shown in the graph above. If there were 50 Dwarf lop rabbits last year, how many Dwarf lop rabbits will there be in 4 years?

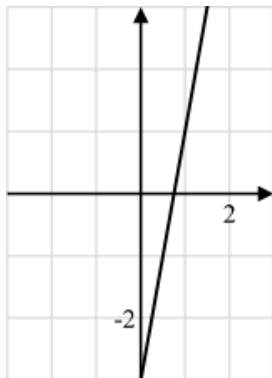
- (A) 200
- (B) 250
- (C) 800
- (D) 1600

8. Which of the following represents the solution set to the inequality $2x + 1 \geq 9$?

- (A) 
- (B) 
- (C) 
- (D) 

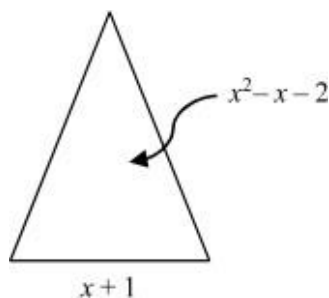
9. $f(x) = 2x - 1$ and $g(x)$ is a linear function that is perpendicular to $f(x)$. If $(0, 4)$ is a point of $g(x)$, at what point do $f(x)$ and $g(x)$ intersect?

- (A) $(0, -1)$
 (B) $(1, 1)$
 (C) $(2, 3)$
 (D) $(3, 2)$



10. The graph shown above represents $f(x) = 4x - 3$. If $f(a + 4) = 5$, what is the value of a ?

- (A) -2
 (B) -1
 (C) 1
 (D) 4

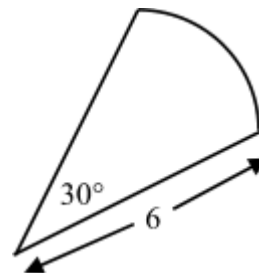


11. The triangle above has an area of $x^2 - x - 2$ and a base of $x + 1$. What is the height of the triangle?

- (A) $\frac{1}{2}(x - 2)$
 (B) $x - 2$
 (C) $2(x - 2)$
 (D) $(x - 2)(x + 1)^2$

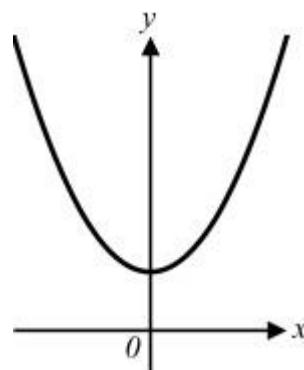
12. Which of the following is equal to $6x^2 - 11x - 7$?

- (A) $(6x - 1)(x + 7)$
 (B) $(6x + 1)(x - 7)$
 (C) $(2x - 1)(3x + 7)$
 (D) $(2x + 1)(3x - 7)$



13. What is the arc length of the figure above?

- (A) 180
 (B) 90
 (C) π
 (D) 2π



14. Which of the following equations could represent an expression for the function in the figure above?

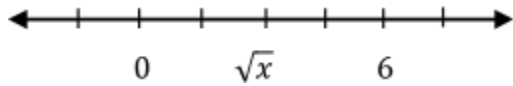
- (A) $f(x) = x^2 + 4$

- (B) $f(x) = x^2 - 4$
 (C) $f(x) = (x - 4)^2$
 (D) $f(x) = (x + 4)^2$

15. Which of the following expressions is equivalent to $\frac{15x^2 - 27x - 6}{x - 2}$?

- (A) $5x + 1$
 (B) $3(5x + 1)$
 (C) $15x^2 - 28x - 4$
 (D) $15x - 35$

16. What is a value of v that satisfies the inequality $|y - 5| \leq 1$?

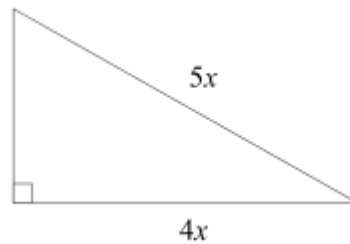


17. What is the value of x in the number line above?

18. A psychological research study at a local university pays participants \$15 if they are students and \$10 if they are non-students. If the research study pays 10 participants a total cost of \$120, how many of the participants were not students?

$$\frac{n^2 + 1}{-2n + 8} = -13$$

19. What value of n satisfies the equation above?



20. If the perimeter of the above triangle is 72, what is the value of x ?

Section 4

1. If $f(x) = 2x + 1$ and $g(x) = 4x - 4$, what is $f(0)$ x $g(0)$? (D) 3

(A) -5

(B) -4

(C) 4

(D) 8

2. If $y : z$ is equal to $1 : 3$, and $z : a$ is equal to $2 : 3$, what ratio is equal to $y : a$?

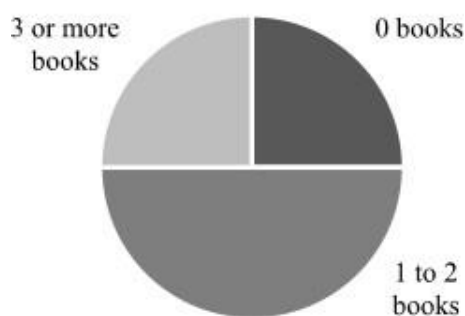
(A) 2:9

(B) 1:3

(C) 1:2

(D) 2:3

Books Read Per Month



3. A sample of 200 people are surveyed about the number of books they read each month, and the results are graphed above. The sample accurately represents the 42,000 people in the city of Omaha. How many people in Omaha can we expect to read 3 or more books per month?

(A) 8,400

(B) 10,500

(C) 18,900

(D) 21,800

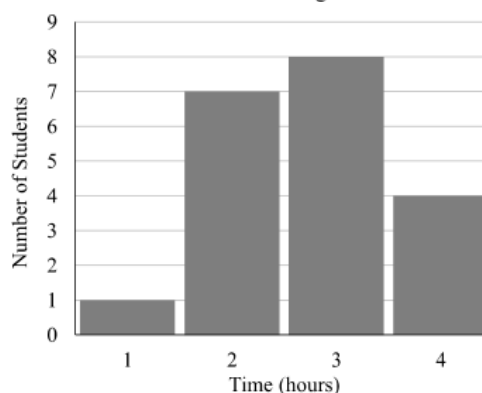
4. A printer can print at a rate of 5 pages per minute. How many hours will it take to print 300 pages?

(A) 0.5

(B) 1

(C) 1.5

Internet Usage



5. Administrators at Washington High School have noticed that students are downloading and watching movies while in class. They want to determine whether it is only a few kids who are using the internet for long periods of time at school. The above graph is the result of an anonymous student survey, representing the number of hours spent on the internet per day by students at Washington High School. Which of the following statements is INCORRECT?

(A) The mode of this data set is 3 hours.

(B) The range of this data set is 3 hours.

(C) 60% of the students surveyed use the internet 3 or 4 hours per day.

(D) The median is higher than the mean for this data set.

$$\sqrt{x+1} = 6$$

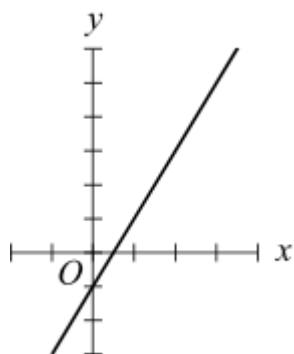
6. Which of the following is a value of x for equation above?

(A) 6

(B) 34

(C) 35

(D) 36



7. Which of the following equations could represent the linear equation above?

- (A) $y = -2x - 1$
- (B) $y = -2x + 1$
- (C) $y = 2x - 1$
- (D) $y = 2x + 1$

8. If $f(x)$ is a linear function that passes through the points $(4, 3)$ and $(-4, -9)$, what is the y -intercept of $f(x)$?

- (A) $(0, 2)$
- (B) $(2, 0)$
- (C) $(0, -3)$
- (D) $(-3, 0)$

9. Which of the following equations represents the function $f(x) = 2x - 1$ shifted 2 units to the left on the xy -plane?

- (A) $g(x) = 2x - 5$
- (B) $g - 3x = 2x$
- (C) $g(x) = 2x + 1$
- (D) $g(x) = 2x - 3$

10. What is the average of $2x + 4$, $5x - 1$, and $-x + 3$?

- (A) $x + 2$
- (B) $x - 2$
- (C) $2x + 2$
- (D) $2x - 2$

University Students' Sleep Habits		
Hours of Sleep	University A	University B
Average	6	8
Median	4	7
Mode	5	7
Standard Deviation	3	1

11. A random sample of students in two different universities were surveyed for their sleep habits. The results are shown in the table above. Which of the following statements is supported by the information in this table?

- (A) The hours of sleep per night varies more among students at University A than students at University B.
- (B) More students attend University B than University A.
- (C) More than half of the students at University B get 7 hours of sleep per night.
- (D) Half of the students at University A get 4 hours of sleep per night.

12. Logan bought 36 pieces of bubble gum, which was 40% of the stored stock. How much bubble gum is remaining in the store?

- (A) 54
- (B) 72
- (C) 80
- (D) 90

Year	Number of Colonies
1992	41,402
1993	43,783
1994	46,337
1995	49,866

13. The table above shows the number of fire ant colonies found in Greenville from 1992 to 1995. Which of the following graphs best represents the number of fire ant colonies in Greenville?

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