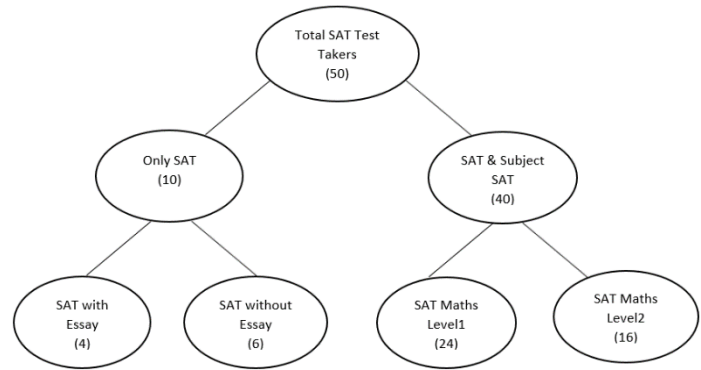


1. The 50 SAT test takers in a class are classified into those who take the SAT only and those who take the SAT along with the subject SAT as shown in the picture. Further, the 'SAT only' test takers are classified into those who take it up with the essay and those who take it up without the essay. Also, the 'SAT & Subject SAT' test takers are classified into those who take up the Maths Level1 test and those who take up the Maths Level2 test. The number of people in each category is also shown within the brackets in the ovals. Which of the following is true according to the data given the picture?



A) The number of 'only SAT' test takers is more than the number of 'SAT & Subject SAT' test takers taking up 'SAT Maths Level 2' test.

B) The fraction of the 'only SAT' test takers that take it up with the essay is equal to the fraction of the 'SAT & Subject SAT' test takers that take up the 'SAT Maths Level1'.

**C) The fraction of the 'only SAT' test takers that take it up with the essay is equal to the fraction of the 'SAT & Subject SAT' test takers that take up the 'SAT Maths Level2'.**

D) The percentage of SAT Test takers who take up only SAT is equal to 25.

2.  $(-2x^2-3) - (-3x+x^2-5)$  equals

A)  $-3x^2-8+3x$

**B)  $-3x^2+2+3x$**

C)  $-5x^2-8+x$

D)  $-5x^2-2x+2$

3. According to a study by a student, a Labrador dog required to run 2 miles a day to digest 2.5 pounds of meat. Accordingly, if the dog had to digest  $x$  kilograms of meat then how many kilometres does it have to run? (1 pound = 0.45 kilograms and 1 mile = 1.6 kilometres approximately)

**A)  $128x/45$**

B)  $45x/128$

C)  $5x/(1.6*0.45)$

D)  $0.45x/(5*1.6)$

4. Out of 2500 participants who regularly participate in a running race conducted every month, 1800 agreed that they practice running every day and the remaining agreed they do not. Which of the following can be inferred reasonably from the given information?

A) 28% of the people in general practice running every day.

B) 72% of the people participate in running races.

C) 72% of the people who participate in that particular running race exercise daily.

**D) 28% of the people who participate in that particular running race regularly do not practice running daily.**

5. If  $2x > 5$  and  $3y < 2$ , then which of the following satisfies the inequalities given?

A) (6,1)

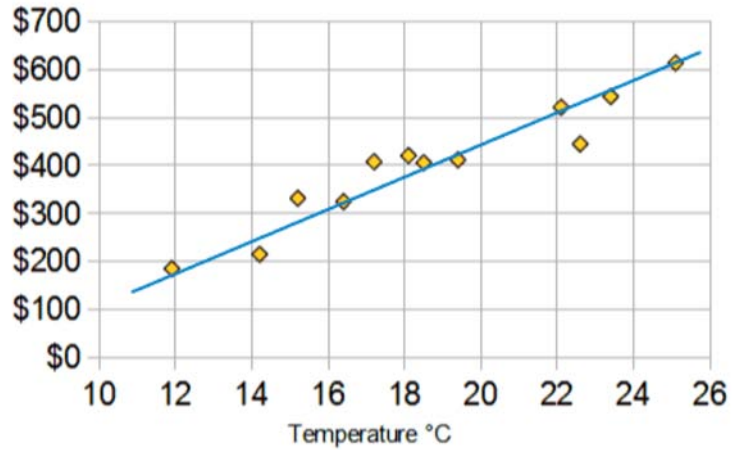
- B) (3,1)
- C) (3,0)**
- D) (3,0.75)

6. The value of the expression  $px^2 - 2x - 15$  equals zero for  $x$  such that  $-2x - 6 = 0$ . What is the value of  $p - 1$ ?

- A) 0**
- B) 1
- C) 2
- D) 3

7. According to the scatterplot showing cost of refrigeration at a cold storage store versus the temperature in the day, the following can be inferred:

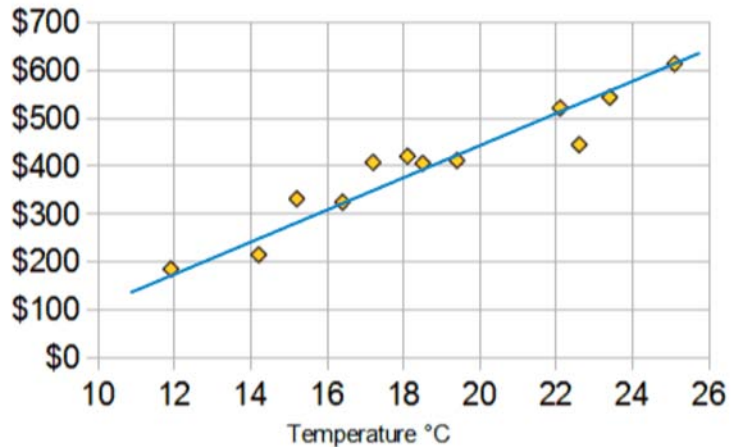
- A) The cost of refrigeration is highest when the day temperature is the lowest
- B) The cost of refrigeration is expected to be more than \$600 if the day temperature is more than 26 degrees Celsius**
- C) The cost of refrigeration decreases with increase in temperature
- D) There is no association between the cost of refrigeration and the day temperature



the  
  
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8. If the cost of refrigeration is between \$400 and \$500, the day temperature is most likely

- A) less than 12 degrees Celsius
- B) between 14 and 16 degrees Celsius
- C) more than 24 degrees Celsius
- D) none of the above**



9.  $px - 5 = 13$  and  $2qx - 8 = 14$ .  $(p + 2q)x$  equals

- A) 13
- B) 14
- C) 20
- D) 40**

10. Victor spent 75% of her \$4 billion in charity. How many thousands of dollars did he spend on charity? (1 billion = 1000 million and 1 million = 1000 thousands)

- A) 3
- B) 3,000
- C) 3,000,000**

D) Cannot be determined

11. Each side of a cubic box pack is 3 inches. The total number of such cubic boxes that fit into a 3 inch high cuboid carton is 45. If the length of the cuboid carton is 15 times the side of the cubic box, the breadth of the cuboid carton is how many times the side of the cubic box?

A) 1

**B) 3**

C) 6

D) 9

12. Targeting a 30% increase in the score Brian got in his first attempt of taking the SAT, he promises he would get a score of score of 1560 in his second attempt. If he could only increase it by 15% instead of 30% then what could have his score been in his first attempt?

A) 1100

**B) 1200**

C) 1300

D) 1400

13. The revenue (in thousand dollars) generated from the sales of a product is plotted against the price of the product in the graph. Which of the following is true according to the graph? (The price was only increased from \$1 to \$8 gradually, \$1 at a time at regular intervals)

A) The revenue didn't get impacted by the increase in price in exactly 3 instances when the price was increased

**B) There are 3 instances when the revenue decreased with an increase in the price**

C) There was an instance when the revenue decreased by 50% when the price was increased a dollar

D) There were no instances when the price increased and



the revenue decreased

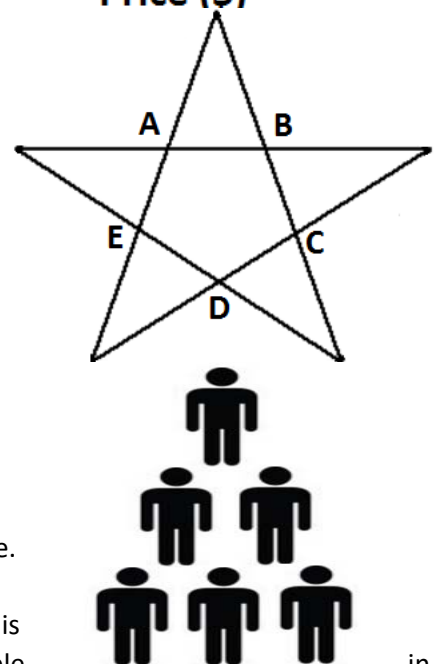
14. The regular pentagon ABCDE surrounded by 5 isosceles triangles forms the shape of a STAR. What is the sum of the measures of the 2 equal angles in the isosceles triangle?

A) 96

B) 120

**C) 144**

D) 180



15. A human pyramid is built by people of equal height standing one over another, each one standing on the shoulders of 2 others as shown in the figure. The height of each person in the pyramid is 5 feet. However, the height of the pyramid with 3 rows of people as shown is not 15 feet but 13.5 feet only. This is due to the people standing on the shoulders and not on the heads of the people the below row. The height of a similar pyramid of 18 rows, built by people of same height (5 feet) would be

in

- A) 90 feet
- B) 81 feet
- C) **77.25 feet**
- D) 75.25 feet

16. If  $x+y=15$  and  $2x=-28$  then  $x-y$  equals

- A) **-43**
- B) -16
- C) -13
- D) 43

17. A restaurant charges a designed a plan with a flat membership fee and also a flat rate per meal in a sales promotions drive. The amount  $A$ , in dollars, a customer ends up paying for having meals ' $x$ ' number of times, according to the plan is modelled by the equation  $A=250 + 3.5x$ . When the equation is graphed in the  $xy$ -plane, what does the slope of the graph represent in terms of the model?

- A) **The flat rate per meal**
- B) The percentage discount offered per meal
- C) The flat membership fee
- D) The number of times one can have the meal so that he makes best use of the membership fee paid

18. The number of visitors to a beach varied according to the average daily temperature as shown in the scatterplot. According to the line of best fit shown, on the day on which the average daily temperature was 92 degrees Fahrenheit, the number of actual beach visitors was approximately what percent less than the estimated number by the line of best fit?

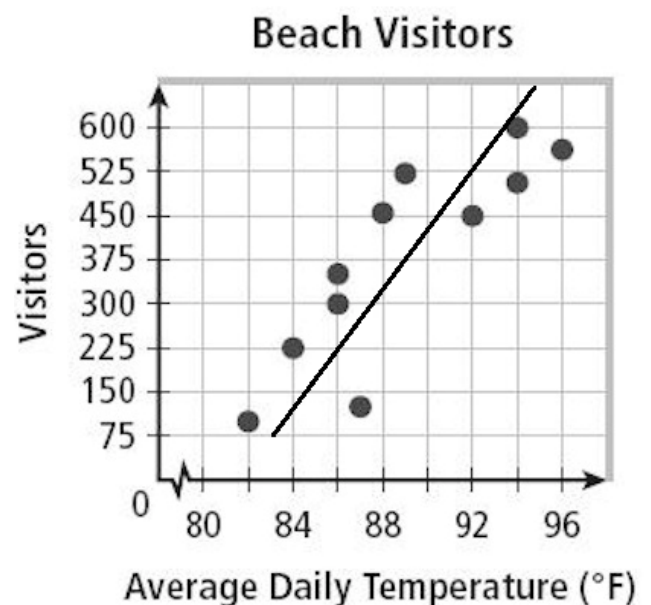
- A) **14**
- B) 25
- C) 50
- D) 64

19.  $T=2\pi (L/g)^{1/2}$ . The time period ' $T$ ' of a pendulum with a length ' $L$ ' and gravitational acceleration ' $g$ ' can be found from the given equation. Which of the following shows the length ' $L$ ' in terms of time period ' $T$ ' and gravitational acceleration ' $g$ '?

- A)  $(1/g) (T/2\pi)^2$
- B)  $(1/g) (2\pi/T)^2$
- C)  $g (2\pi/T)^2$
- D)  **$g (T/2\pi)^2$**

20. If the time period ' $T$ ' of a pendulum, given by the formula  $T=2\pi (L/g)^{1/2}$  equals  $2\pi$ , then which of the following must be true?

- A)  **$L=g$**
- B)  $L=g^2$
- C)  $g=L^2$



D)  $L=g=1$

21. The number of visitors to a beach varied according to the average daily temperature as shown in the scatterplot. According to the line of best fit shown, which of the following is closest to the predicted increase in the number of beach visitors, for every 2 degrees Fahrenheit increase in the average daily temperature?

- A) 50
- B) 100**
- C) 150
- D) 300

22. The average ages of people in 4 countries are given in table 1. The average ages of people in 3 other countries are given in table 2. The median of the average ages of the countries in table 1 is how much higher than the median of the average ages of the countries in table 2.

A	42
B	60
C	38
D	72

D	45
E	48
F	63

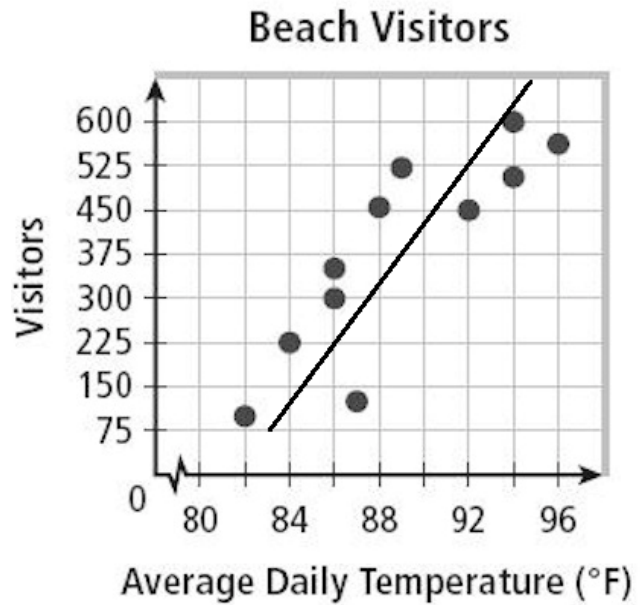
- A) 0
- B) 1
- C) 2
- D) 3**

23. The diameters and the heights of three jelly candies in cylindrical, spherical and conical shape are equal. Which of the following must be true?

- A) The volume of the cylindrical jelly candy equals the volume of the spherical one
- B) The volume of the cylindrical jelly candy equals the sum of the volumes of the other two candies**
- C) The volume of the spherical jelly candy equals the sum of the volumes of the other two candies
- D) The volume of the conical jelly candy equals the sum of the volumes of the other two candies

24. A quadratic equation  $y=12(x-5)^2+400$  determines the score one got in a series of practice tests before and after preparing for an actual test. 'y' represents the score in a particular test in the series and 'x' represents the number of tests he has taken before that particular test. If the score started increasing only after he completed his preparation for the test, how many practice tests would he have taken before he actually completed his preparation for the test?

- A) 5**
- B) 6
- C) 7
- D) 8



25. The table gives the ideal weight ( $w$ ) in pounds, suggested according to a person's height ( $h$ ) in inches. Which of the following best represents the relationship between  $w$  and  $h$ ?

A)  $h = 2.6w$

**B)  $w = 2.6h$**

C)  $wh = 2.6$

D)  $h = 0.38w$

Height ( $h$ )	Weight ( $w$ )
70	182
75	195
80	208

26. If there are  $x$  girls of average height 60 inches and  $y$  boys of average height 72 inches in a lift whose capacity is exactly equal to the weight of the  $x$  girls and  $y$  boys put together, what is the capacity of the lift?

A)  $2.6*(60y+72x)$

**B)  $156x+187.2y$**

C)  $2.6*(x+y)$

D)  $156y+187.2x$

27. If the bacteria in a pond grows at the rate of 1.2million an hour and the number of bacteria at 12 noon in the pond was 3.6 million, then the number of bacteria, ' $t$ ' minutes after 12 noon is given by

**A)  $B = 1200000+60000t$**

B)  $B = 1.2+60t$

C)  $B = 12+60t$

D)  $B = 1200000t+60000$

28. A line passing through the origin also passes through another point ( $p,q$ ). If the slope of the line is  $5/2$  then the ratio of  $q$  to  $p$  equals

A) 0.4

B) 2

**C) 2.5**

D) 5

29. A circle is represented by the equation  $x^2+y^2=81$ . Which of the following lies outside the circle?

A)  $(1, 2\sqrt{5})$

B)  $(1, 3\sqrt{5})$

C)  $(1, 4)$

**D)  $(1, 4\sqrt{5})$**

30. The scores of a student in his three attempts on a test are given in the table. If the percentage increase in his score from the second attempt to his third attempt is double the percentage increase in his score from the first attempt to the second attempt, what is his score ' $x$ ' in the third attempt most near to?

2014	1100
2015	1210
2016	X

A) 1350

B) 1400

C) 1450

D) 1500

31. The population of San Francisco grew from a mere 300 in 1846 to about 36000 in 1852. If we assume, the population grew linearly since 1846, what would have been its population in the year 1862 in thousands?

A) 95.5

B) 955

C) 9550

D) 95500

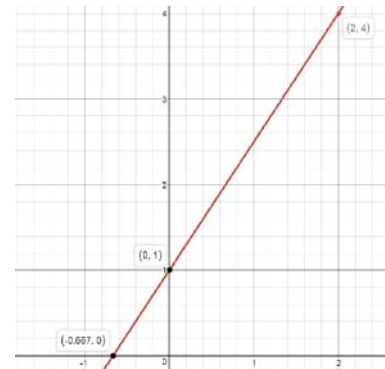
32. What is the slope of the line shown in the x-y plane shown?

A) 0

B) 1

C) 1.5

D) 2



33. A boxer *Kim Lui*, gets 2 points for boxing on the opponent's head while he loses a point on his opponent boxing on his head. If the boxer scored a total of 12 points and the total number of boxes on the heads including both his and his opponent's is 15, how many more times did *Kim Lui* box on his opponent's head than his opponent boxed on his head?

A) 3

B) 6

C) 9

D) 12

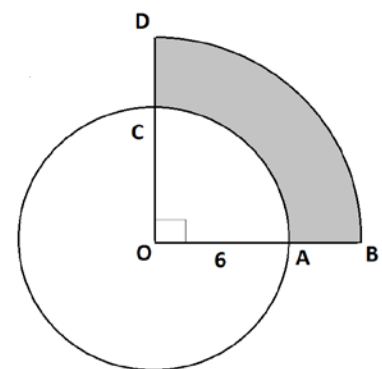
34. In the figure shown, O is the centre of the circle with OA and OC being radii equal to 5 units. OB and OD are radii of another circle with centre O and arc BD is a part of that circle. If Angle COA is right angled, then what is the ratio of the area of the figure (shaded) enclosed by the points D, B, A & C to the area of the sector OAC? (CD=2 units)

A) 2:3

B) 7:9

C) 8:9

D) 1:1



35. The system of equations  $y = x^2 + 2x + 3$  and  $y = -2x - 1$  have

A) No solution

B) Only 1 solution

C) 2 solutions

D) Infinite Solutions

36. ABC and DEF (not shown) are similar triangles.  $AB/DE = BC/EF = CA/FD$ . Also, Angle ABC equals 40 degrees while angle BCA equals 60 degrees. What is the measure (in degrees) of angle EFD?

A) 40

- B) 60
- C) 80
- D) Cannot be determined

**37.** Five people threw a coin four times (2 times in 2 rounds) and the number of times each of them got a head turning up on the coin in each of the rounds are summarized in the table.

	0 Heads	1 Head	2 Heads	Total
Round 1	2	1	2	5
Round 2	0	2	3	5

What is the mean number of times the 5 people got tails in their throws in the first round equals:

- A) 1**
- B) 1.5
- C) 2
- D) 2.5

**38.** What are the chances that, in the round 2, a randomly selected person from the five of them has got exactly 1 Tail in his 2 throws?

- A)  $1/5$
- B)  $2/5$**
- C)  $3/5$
- D)  $4/5$