



MATHS

BOOKS - PRINCETON MATHS (ENGLISH)

PRACTICE TEST 4

Math Test No Calculator

1. If two times a number is equal to that number minus 4, what is the number?

A. -7

B. -6

C. -4

D. -3

Answer: C



Watch Video Solution

2. The number of soil samples, s , that Sonal needs for an experiment must be greater than 6 but less than or equal to 13. Which of the

following represents an acceptable number of soil samples for Sonal's experiment?

A. $6 < s < 13$

B. $6 \leq s < 13$

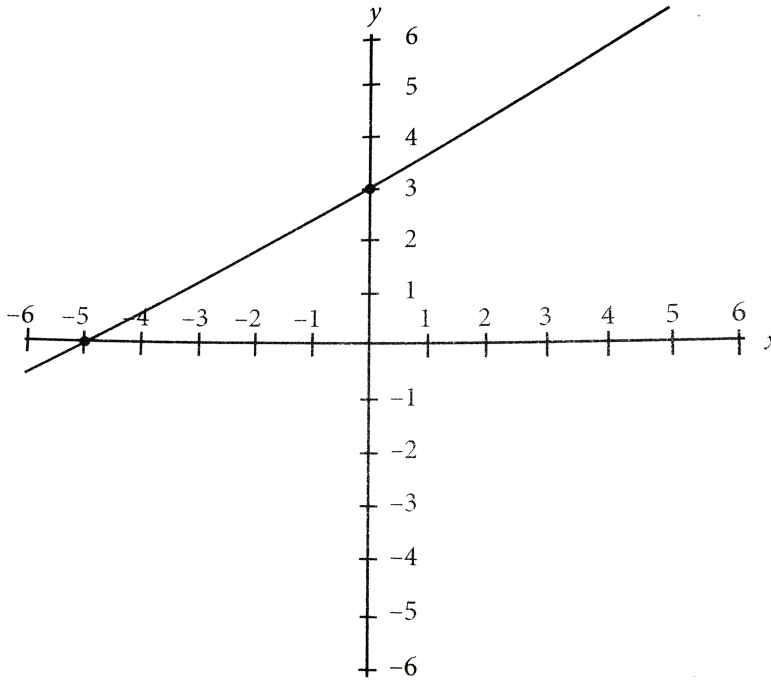
C. $6 < s \leq 13$

D. $6 \leq s \leq 13$

Answer: C



Watch Video Solution



3.

In the figure above, of $y=f(x)$ is shown. Which of the following could be the equation of $f(x)$?

A. $f(x) = -\frac{3}{5}x + 3$

B. $f(x) = -\frac{3}{5}x - 3$

C. $f(x) = \frac{3}{5}x - 3$

D. $f(x) = \frac{3}{5}x + 3$

Answer: D



Watch Video Solution

4. IF $x+y=0$, which of the following must be equivalent to $x-y$?

A. $-2y$

B. $\frac{x}{y}$

C. x

D. x^2

Answer: A



Watch Video Solution

5. Which of the following is equivalent to

$$2x^2 - 6x - 8?$$

A. $2(x - 4)(x + 1)$

B. $3(x+4)(x-1)$

C. $2(x-3)(x+2)$

D. $3(x-4)(x-2)$

Answer: A



Watch Video Solution

6. Ryan and Allison build a ramp to help their elderly cat, Simms, walk up to their bed. They need the ramp to make a 35° angle with their bedroom floor. How long must the ramp be to

reach the top of their bed that is exactly three feet off the ground?

A. $\frac{\sin 35^\circ}{3}$

B. $\frac{\sin 55^\circ}{3}$

C. $\frac{3}{\sin 55^\circ}$

D. $\frac{3}{\sin 35^\circ}$

Answer: D



Watch Video Solution

7. IF $3a+2b=24$ and $4a+5b=53$, what is the value of $a+b$?

A. 2

B. 7

C. 9

D. 11

Answer: D



Watch Video Solution

8. Given the equation $y = 3x^2 + 4$, what is the function of the coefficient of 3?

A. It moves the graph of $y = 3x^2 + 4$ three units higher than the graph of $y = x^2 + 4$.

B. It moves the graph of $y = 3x^2 + 4$ three units lower than the graph of $y = x^2 + 4$.

C. It makes the graph of $y = 3x^2 + 4$ wider than the graph of $y = x^2 + 4$

D. It makes the graph of $y = 3x^2 + 4$

narrower than the graph of $y = x^2 + 4$.

Answer: D



[View Text Solution](#)

9. Steven needs to buy t theme park tickets for himself and his family. Each ticket costs \$80, and the number of tickets he needs to buy can be modeled by the expression $t^2 - 4t - 90 = 6$ when $t > 0$. What is the

total cost of the theme park tickets that Steven Purchased?

A. 640

B. 800

C. 960

D. 1120

Answer: C



Watch Video Solution

$$10. 2c + 3d = 17$$

$$6c + 5d = 39$$

In the system of linear equations above. What is the value of $4c-4d$?

A. -4

B. 1

C. 4

D. 13

Answer: C



Watch Video Solution

11. IF $x^2 + 2xy + y^2 = 64$ and $y-x=12$, which of the following could be the value of x ?

A. -10

B. -4

C. 2

D. 10

Answer: A



Watch Video Solution

12. Samantha offers two different packages of yoga classes at her yoga studio. She offers two hot yoga sessions and three zero gravity yoga sessions at a total cost of \$400. She also offers four hot yoga sessions and two zero gravity sessions at a price of \$440. Samantha wants to offer a larger package for long time clients in which the cost must exceed \$800. If Samantha does not wish to include more than 13 sessions for the long-time client package,

will she be able to create this package for her clients?

A. No, because the closest package that she can offer consists of three hot yoga and three zero gravity yoga sessions.

B. No, because the closest package that she can offer consists of four hot yoga and four zero gravity yoga sessions.

C. Yes, because she can offer five hot yoga and five zero gravity yoga sessions.

D. Yes, because she can offer six hot yoga and six zero gravity yoga sessions.

Answer: D



View Text Solution

13. Cuthbert is conducting a chemistry experiment that calls for a number of chemicals to be mixed in various quantities. The one amount of which he is unsure is grams of potassium, p. IF cuthbert is certain

that

$$(3p^2 + 14p + 24) - 2(p^2 + 7p + 20) = 0.$$

What is one possible value of $3p+6$, the exact number of grams of potassium that Cuthbert would like to use for this experiment?

A. 20

B. 18

C. 12

D. 10

Answer: B



 Watch Video Solution

14. What is the value of $(2+8i)(1-4i)-(3-2i)(6+4i)$?

A. 8

B. 26

C. 34

D. 50

Answer: A



Watch Video Solution

15. If $2\sqrt{x} = x - 3$, which of the following is the solution set for x ?

A. $\{-1,9\}$

B. $\{1,-9\}$

C. $\{9\}$

D. $\{1,9\}$

Answer: C



Watch Video Solution

16. A group of students at Omega high school is using staples and popsicle sticks to build a scale model of the Great wall of china as part of a Project detailing China's military history. The number of staples the students will need is three times the number of popsicle sticks they will need. If the students determine they need 84 staples for this particular project, how many popsicle sticks will they need?



Watch Video Solution

17. A standard parabola in the x,y coordinate plane intersects the x -axis at $(5,0)$ and $(-5,0)$.

What is the value of the x -coordinate of this parabola's line of symmetry?



Watch Video Solution

18. Danielle is a civil engineer for Dastis Dynamic Construction, Inc. She must create blueprints for a wheelchair accessible ramp leading up to the entrance of a mall that she

and her group are building. The ramp must be exactly 100 meters in length and make a 20° angle with the level ground. What is the horizontal distance, in meters, from the start of the ramp to the point level with the start of the ramp immediately below the entrance of the mall, rounded to the nearest meter? (Disregard units when inputting your answer)



[View Text Solution](#)

19. IF twice a number is equal to that number minus five , what is three times that number plus seventeen minus that number?

A. 3

B. 5

C. 8

D. 7

Answer: 7



Watch Video Solution

20. Given that the equation $3x^2 + 2x - 8 = 0$ has two distinct solutions, what is the value of the smaller solution subtracted from the larger solution?



[Watch Video Solution](#)

Math Test Calculator

1. IF $3y=y+2$, what is the value of $2y$?

A. 1

B. 2

C. 3

D. 4

Answer: B



Watch Video Solution

2. Merry joined an online community that charges a monthly fee of \$15. A one-time enrollment fee of \$50 was charged when she joined. Which of the following represents the

total amount of fee that merry has paid to the community organizers after m months, in dollars?

A. $15m+50$

B. $15+50m$

C. $15m-50$

D. $(15 + 50)m$

Answer: A



Watch Video Solution

3. Rob had his favorite guitar tuned up and ready to take to a performance by his cover band at a local venue Saturday. He decides at the last minute to take x additional guitars, just in case his favorite guitar has an issue. IF the total number of guitars that Robert takes to the performances can be modeled as $x+1$, what does the "+1" account for in the expression?

A. It accounts for an additional guitar that

Rob returns to his house and picks up in

the middle of the performance.

B. It accounts for his favorite guitar, which

Rob was taking from the beginning.

C. It accounts for the number of additional

guitars that Rob decided to take.

D. It accounts for an additional non-guitar

musical instrument that Rob decided to

take.

Answer: B



Watch Video Solution

4. A group of 24 students was polled as to whether they enjoy biology class, chemistry class, both, or neither. The results are shown in the table below:

	Biology	Chemistry
Enjoy	14	18
Don't Enjoy	10	6

Given the above data, which of the following conclusions is true?

A. The ratio of those who enjoy biology class to those who enjoy chemistry class is 7:8.

B. The ratio of those who enjoy chemistry class to those who don't enjoy chemistry class is 9:4.

C. The ratio of those who enjoy biology class to those who don't enjoy chemistry class is 7:2

D. The ratio of those who don't enjoy biology class to those who enjoy chemistry class is 5:9.

Answer: D



Watch Video Solution

5. Dr. Goldberg, a noted dietician, mixes different solutions as part of her research into sugar substitutes. By weight, she mixes 40% of a sample of substitute A and 70% of a sample

of substitute B to create substitute C. IF Dr. Goldberg initially had 60 grams of substitute A and 110 grams of substitute B, then what would be the weight , in grams, of substitute C?

A. 24

B. 77

C. 101

D. 170

Answer: C



Watch Video Solution

6. Which of the following is equivalent to the expression $x^4 - x^3 - x^2$?

A. $x(x^2 - x - 1)$

B. $x(x - x^2 - x^3)$

C. $x(x^3 - x^2)$

D. $x^2(x^2 - x - 1)$

Answer: D



Watch Video Solution

7. Officer Blake drives his squad car 1 mile per minute while patrolling local highways during his shift. If he has driven 480 miles by the end of his shift, how many total hours did he drive his car at the above rate?



[Watch Video Solution](#)

8. In the inequality $37 \leq -2x + 1$ what is the appropriate order of steps needed to solve the inequality for x ?

A. Add 1 to both sides, divide both sides by 2, and flip the inequality sign to \geq .

B. Subtract 1 from both sides, divide both sides by -2 and flip the inequality sign to \geq .

C. Add 1 to both sides, divide both sides by -2, and keep the original inequality sign.

D. Subtract 1 from both sides, divide both sides by 2, and keep the original inequality sign.

Answer: B



Watch Video Solution

9. What is the value of $(2x^2 + 4x + 8) - (2x^2 - 4x + 7)$?

A. $4x^2 + 8x + 15$

B. $2x^2 + x + 1$

C. $8x + 1$

D. $8x + 15$

Answer: C



Watch Video Solution

10. As part of a project for his cartography elective, Adam climbs several hills to create a relief map for the woods surrounding his house. He records the vertical height of the five hills he climbed at 55 feet, 42 feet, 38 feet, 50 feet and 48 feet. For his project, Adam must convert his measurements to inches. IF 1 foot=12 inches, what is the measurement , in

inches, of the tallest hill Adam will have on his map?

A. 660

B. 600

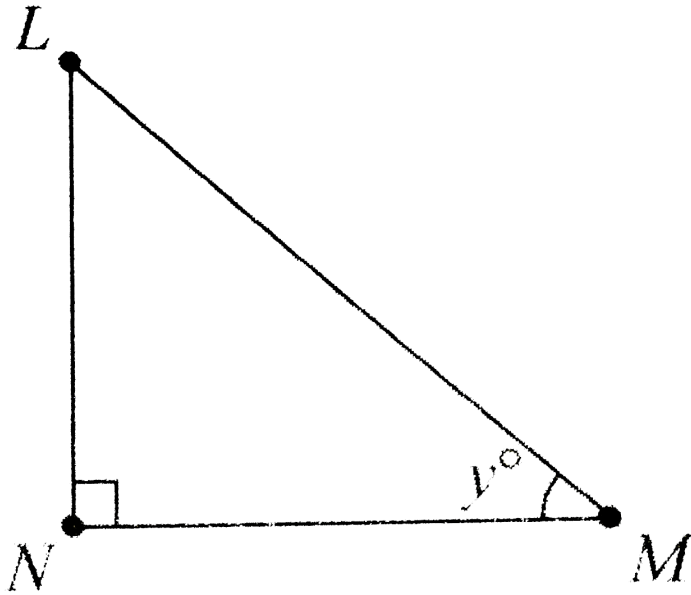
C. 576

D. 456

Answer: A



Watch Video Solution



11.

In the figure above, if $y=40$ and $\overline{LN} = 8$, which of the following most closely approximates the length of \overline{MN} ?

A. 0.10

B. 9.53

C. 10.44

D. 12.45

Answer: B



Watch Video Solution

12. McCoy Max speed, Inc, Makes custom skateboards for its customers. Two wooden skateboards and three composite skateboards cost \$650. Three wooden skateboards and one composite skateboards cost \$450. How much

would McCoy Max speed charge a customer who purchases five wooden skateboards and four composite skateboards?

A. 500

B. 600

C. 1000

D. 1100

Answer: D



Watch Video Solution

13. The chart below shows data about the number of employees at Cuda Cola, a popular beverage company.

	2012	2013	2014
Total Employees	1,670	1,890	2,110
Percent Male	65%	60%	55%
Percent Female	35%	40%	45%

Assuming the employee total grows at the same rate each year, and male and female percentages continue to decrease and increase by 5%, respectively, approximately how many male employees will work at Cuda Cola in 2015?

A. 1515

B. 1398

C. 1282

D. 1165

Answer: D



Watch Video Solution

14. John Croxley, the mayor of Black Rock, NY, is counting the number of restaurants that have opened in his town per month for the last

seven months. He compiles the seven numbers into Set F, which contains the elements 4, 5, 11, 13, 16, 18, and x . If both the median and average (arithmetic mean) of Set F equal 11, what must be the value of x , the unknown number of restaurants that opened in Mayor Croxley's town last month?

A. 9

B. 10

C. 11

D. 12

Answer: B



View Text Solution

$$15. 17s + 20t = 59$$

$$30s + 40t = 110$$

In the system of equations above, what is the value of t in terms of x ?

A. $\frac{2s}{5}$

B. $\frac{s}{5}$

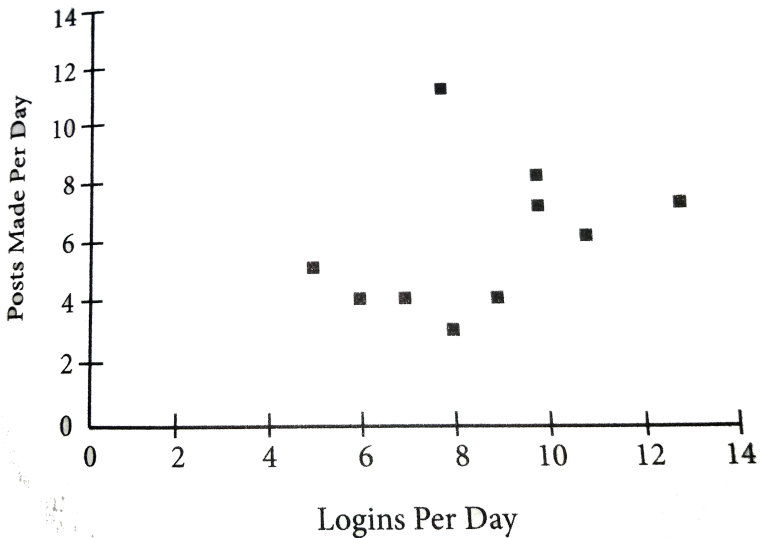
C. $\frac{5}{2s}$

D. $\frac{5}{s}$

Answer: C



Watch Video Solution



Given the scatterplot graph above, ten

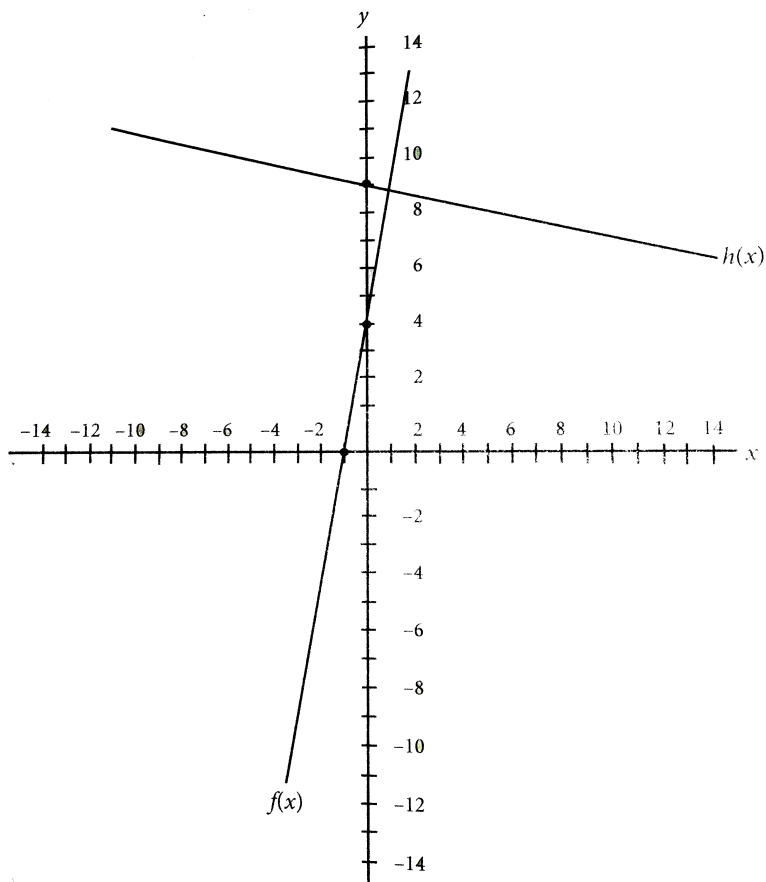
students at Welton Academy were polled at random at their usage of the school's new physics centered social media app, E=MC shared. The app was developed to encourage students to discuss physics Curricula and concepts in ways that mirrored social media trends in 2013. Students were asked how many times they logged into the app each day as well as how many posts they actually made using the app. With the given data, what conclusions can be drawn about this group of students?

- A. The majority of students polled logged in more times per day than they posted
- B. The majority of students polled posted more times per day than they logged in.
- C. The majority of students polled logged in and posted an equal number of times
- D. No relationship can be drawn between logins per day and posts per day.

Answer: A



View Text Solution



17.

Two graphs $f(x)$ and $h(x)$ are shown above. IF $f(x)=3x+4$ and $f(x)$ and $h(x)$ are perpendicular,

which of the following could be the equation of $h(x)$?

A. $h(x) = \frac{1}{3}x + 9$

B. $h(x) = -\frac{1}{3}x + 9$

C. $h(x) = 3x + 9$

D. $h(x) = -3x + 9$

Answer: B



Watch Video Solution

18. The number of eggs that Farmer Jones has in his chicken coop will grow exponentially as Farmer Jones buys more chickens to increase production. The number of eggs Farmer Jones has in the coop can be modeled by the equation $y = 3^x$ beginning on Day 1, where x is given by $x=1$, and y is the number of eggs currently in the coop. IF the coop can support only 4,000 eggs, and Farmer Jones empties the coop every day, on which day will the chickens produce too many eggs for the coop to support?

A. Day 6

B. Day 7

C. Day 8

D. Day 9

Answer: C



Watch Video Solution

19. IF $a = \frac{4a^2}{16}$ and a is a nonzero integer,

which of the following is equivalent to a ?

A. $4a$

B. $4\sqrt{a}$

C. $\sqrt{2}a$

D. $2\sqrt{a}$

Answer: D



Watch Video Solution

20. Three different chefs work together to prepare meals for 280 dinner guests. Each works at a different speed, and their combined

output throughout the night is modeled by the equation $8x+4x+2x=280$. If x is a positive integer, which of the following could $8x$ represent in the equation?

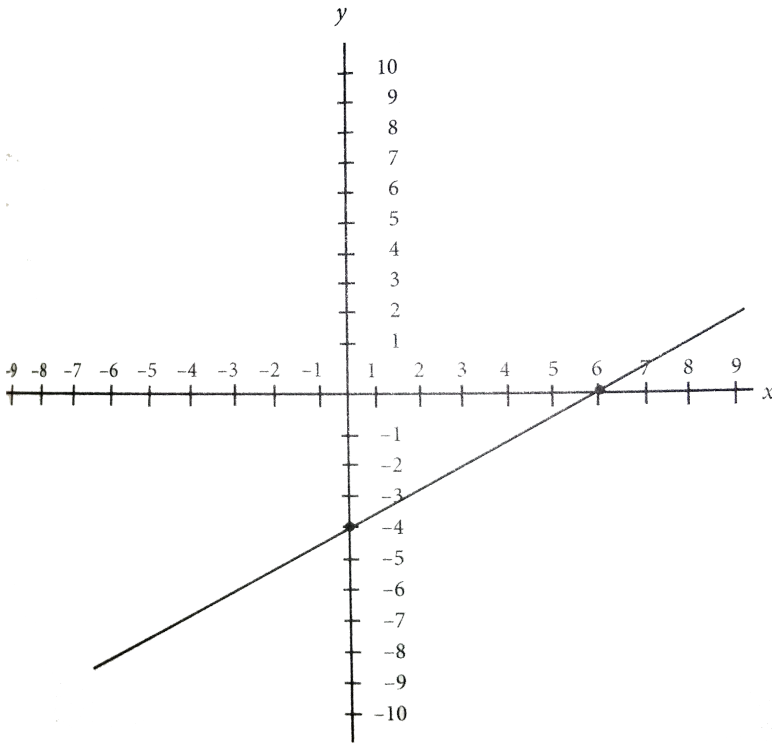
- A. The total meal output by the slowest chef, who made 40 meals
- B. The total meal output by the fastest chef, who made 160 meals
- C. The total meal output by the fastest chef, who made 80 meals

D. The difference between the output between the slowest and fastest chef, which would be 120 meals.

Answer: B



Watch Video Solution



21.

The graph $y=f(x)$, shown above models the performance of a certain crop, where x is the nutrients subtracted or added to the soil and y is the gain or loss of pieces of fruit added to the total harvest. A more powerful fertilizer

that is used causes the graph $y=f(x)$ to be reflected over the line $y=x$. which of the following best describes the behaviour of the crop with the new fertilizer?

A. For every three nutrients added to the soil, the crop loses two additional fruits for the total harvest.

B. For every two nutrients added to the soil , the crop loses two additional fruits for the total harvest.

C. For every three nutrients added to the soil, the crop adds two additional fruits to the total harvest.

D. For every two nutrients added to the soil, the crop adds three additional fruits to the total harvest.

Answer: D



View Text Solution

22. George and Joe interview the same 20 follow students regarding their interest in their schools new model UN club. George asked the students to respond with interested., Sort of interested , and Noot interested. Joe asked the students to rate their interest on a scale of 1 to 5. The results of the polls are below.

George's Poll

Response	Number of Students
Interested	8
Sort of Interested	5
Not Interested	7

Joe's Poll

Rating	Number of Students
1	5
2	4
3	3
4	4
5	4

After reviewing the data, the Model UN advisors determine that Joe informed the students of Whether a 1 or a 5 was the best

rating, but neglected to report to them whether it was a 1 or a 5 that was the best rating in the report. What additional piece of information would most help the advisor determine whether a 1 or 5 was the best rating?

- A. Requesting the George redo his poll with the same rating system as Joe's poll
- B. Requesting that Joe redo his poll with the same rating system as George's poll

- C. Polling all of the students who said "Interested" in George's Poll and asking them to choose between "Extremely Interested" and "Very Interested"
- D. Polling all of the students who gave a "1" rating in Joe's poll and ask them if they are interested in MODEL UN

Answer: D



View Text Solution

23. Each winter, Captain Dan's Ski Lodge rents both pairs of skis and snowboards to its guests for a flat daily rate per pair of skis and a flat daily rate per snowboard. Five pairs of skis and two snowboards will cost a family \$370. Three pairs of skis and four snowboards will cost a family \$390. During a particularly slow season, Captain Dan announces a 10% discount on all skis and snowboards. What would be the cost of renting two pairs of skis and two snowboards if they were rented during this discount period?

A. 99

B. 110

C. 198

D. 220

Answer: C



Watch Video Solution

24. IF $8x + 8y = 18$ and $x^2 - y^2 = -\frac{3}{8}$,

what is the value of $2x-2y$?

A. $-\frac{1}{3}$

B. $-\frac{1}{6}$

C. $\frac{1}{3}$

D. $\frac{1}{6}$

Answer: A



Watch Video Solution

25. Shaun is developing a weight loss regimen, which includes both a workout plan and a calorie-restriction plan. Shaun wants to work

out for no less than 30 minutes and no more than 60 minutes a day and consume no less than 2,000 and no more than 2,500 calories. If each minute, m , of his workout time burns 50 calories .which of the following inequalities represents the number of minutes, m , that that Shaun can work out each day to burn off as many calories as he consumes?

A. $30 \leq m \leq 60$

B. $30 \leq m \leq 50$

C. $40 \leq m < 50$

$$D. 40 \leq m \leq 50$$

Answer: D



Watch Video Solution

26. A professional baseball team wishes to average 45,500 season. Through the first 60 games of the season, the team has averaged 43,000 ticket purchases per game. Which of the following most closely approximates how many ticket purchases per game the team

must average for the remainder of the season in order to hit its overall goal of an average of 45,500 ticket purchases per game for the season?

A. 46970

B. 47880

C. 48000

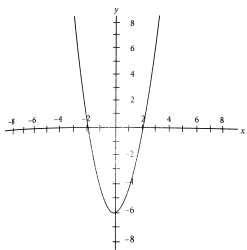
D. 48220

Answer: A

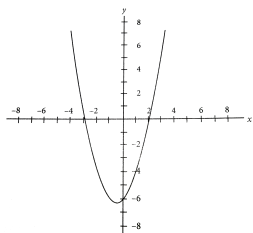


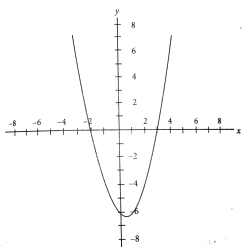
View Text Solution

27. A certain polynomial, P , has a degree of 2. Polynomial P has zeroes of 2 and -3 and $a > 0$ when the function of polynomial P is written in the form of $y = ax^2 + bx + c$. Given this information, which of the following could be the graph of polynomial P ?

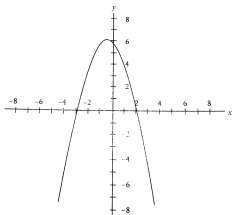


B.





C.



D.

Answer: B



View Text Solution

28. Circle O (not shown) is divided into three sectors. Point P, Q and R are on the circumference of the circle. Sector POR has an

area of 8π , and sector ROQ has an area of 6π .

IF the radius of circle O is 4, what is the measure of the central angle of sector QOP, in degrees?

A. 45

B. 90

C. 135

D. 180

Answer: A



Watch Video Solution

29. Medical residents at Lakewood Hospital are choosing their individual specialties. Among them, 40% choose cardiology, 16% choose oncology, 34% choose endocrinology, and the remaining $x\%$ choose hematology. Once the doctors pick their first speciality, they are then each asked to choose a second specialty from the previous four options in case their original speciality is already filled. They may not pick their original speciality again. 20% of those who originally picked cardiology choose

oncology as their second choice. IF no other field choose oncology as their second choice, and the hospitals boasts 200 medical residents, then what is the total number of residents who named oncology as either their first or second choice, in terms of x ?

A. $8x-128$

B. $8x-144$

C. $x^2 + 24x - 188$

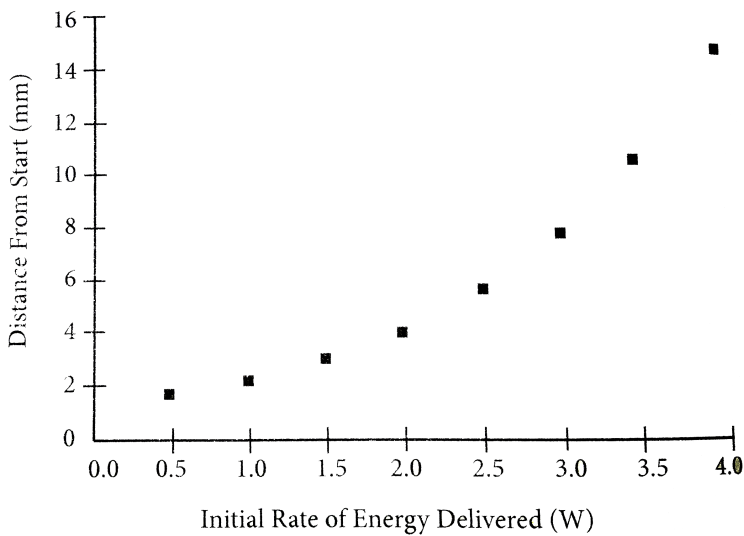
D. $x^2 - 24x + 188$

Answer: D



Watch Video Solution

30. Mr. Lastorka's science class is running experiments with an energy efficient model electric car, As the initial rate of energy delivered to the car, measured in watt, increases, the number of millimeters moved by the car from its starting positions increases exponentially . The results the several trial runs are shown on the scatterplot graph below.



Based on the data, the students in Mr . Lastroka's class determine the exact equation involving Watts, x and total distance from start, y . They call the function $y=f(x)$ over the x -axis. He challenges each student to determine the new function and what it would mean from a physics perspective. Four students

pairs gave their answers below. Who is correct, and for what reasons?

A. Charles and Shannon, who identify the new equation as $y = -2^x$ and explain that the new graph indicates that the car is still moving forward at the same rate as before

B. Michael and Lauren, who identify and new equations as $y = -2^x$ and explain that the new graph indicates the car is

now moving in reverse at the same rate as before.

C. Matthew and Karen, who identify the new equations as $y = -2^x$ and explain that the new graph indicates that the car is now moving forward more rapidly than before.

D. Andy and Joanie, who identify the new equation as $y = 2^{-x}$ and explain that

the new graph indicates that the car is no longer moving in any direction.

Answer: B



View Text Solution

31. What number divided by two is equal to that same number minus 15?



Watch Video Solution

32. The number of hours Robert spends in his game room is proportional to the number of hours he spends playing Call of Destiny IV, Modern Battlefield. If he plays Call of Destiny IV for 6 hours, he will spend 8 hours in his game room. How many hours will Robert spend in his game room if he plays Call of Destiny IV for only 3 hours?



Watch Video Solution

33. Twelve Smooth Guide Pens and eight Easy-Write pencils cost exactly \$16.00 at Office world. Six smooth - Glide Pens and ten Easy - write Pencils cost \$11.00 at the same location . How much will nine Smooth-Glide pens and nine Easy-Write pencils cost at Office world? (disregard the dollar sign when gridding your answer).



Watch Video Solution

34. In the equation $3x^2 - 16x = -20$, what is one possible value of x ?



Watch Video Solution

35. Anthropologists determine that new dwellings in an ancient farming community were constructed monthly as modeled by the function $f(x)=2x+100$, where x is the current month of the year and $f(x)$ is the number of dwellings constructed by the end of that

month. Additionally, they determine that the population grew exponentially each month, thanks to the discovery of more fertile land for farming. This growth is modeled by the equation $g(x) = 3^x$, where $g(x)$ represents the current population at the end of a given month. What is the smallest integer value of x , with 1 representing the end of January and 12 representing the end of December, at which the population surpasses the number of dwellings built?



Watch Video Solution

36. In a school-wide competition held at Saul C. Tigh memorial High school, Olympiad teams are challenged to come up with different circuits involving both real and imaginary currents, imaginary currents exists in spots where the electrical energy encounters zero resistance, such as through a coil or wire. Real currents exist only where the electrical energy headed through the circuit encounters resistance, such as when a light bulb "resists" the current and takes up some of the energy carried throughout the circuit.

The members of team Charlie develop a circuit in which the total current, real and imaginary, can be measured at $50+12i$ amps. They then add the current together with the current produced by Team Delta's circuit, $40-9i$ amps. Finally, they decide to multiply the resulting current, in amps, by Team Epsilon's total current, $60-2i$ amps. What is the final current, in amps, after the entire process is completed?



[Watch Video Solution](#)

37. The chart below shows the population distribution for the 2,400 occupants of the city of centre Hill.

	Adult Male	Adult Female	Child
% Living in Uptown	9	8	6
% Living in Midtown	22	20	15
% Living in Downtown	21	22	12
% Living in Suburbs	48	50	67

IF there are an equal number of adults and children, and adult females outnumber adult males by 200, what is the sum of the women living uptown and the children living in the suburbs of Centre Hill?



38. The chart below shows the population distribution for the 2,400 occupants of the city of centre Hill.

	Adult Male	Adult Female	Child
% Living in Uptown	9	8	6
% Living in Midtown	22	20	15
% Living in Downtown	21	22	12
% Living in Suburbs	48	50	67

Centre Hill plans to annex the area around a nearby lake. This new part of centre hill will be called, appropriately, Then annex. the annex will add to the current population of Centre

Hill. The percent of adult males living in Uptown will decrease to 6% after incorporating The annex into Centre Hill. IF the information from Part 1 Holds true for the original four districts of the city of Centre Hill, then how many adults live in the Annex?



[View Text Solution](#)