

4. Anita attends a baseball game in Atlanta and estimates that there are 50,000 fans in attendance. Bob attends a baseball game in Boston and estimates there are 60,000 fans in attendance. A league official who knows the actual numbers attending the two games notes that: Institute #

Institute # # "

The actual attendance in Atlanta is within 10% of Anita's estimate. Bob's estimate is within 10% of the actual attendance in P ii.

Institute \$ 75 'S

mutilite # ** *

multitute ## #

面动曲根新林谱像

to the the the

multilite # # *

Institute 新林塔 K

matine # # '& R

mating # # 'S PL

to the We By M

To the nearest 1000, the largest possible difference between the numbers attending the two games matitute # # 'S

Institute # # *

a. 10,000.

Institute # ** *

b. 11,000.

multille m # *

is

Ro

Ro

Ro

Y.

Y.

Ro

to the bit is the

to the W- 1/3 Ph

- c. 20,000.
- d. 21,000.
- e. 22,000.
- 5. A standard digital clock displays hours with numbers ranging from one to twelve as opposed to the European digital clock that displays hours with numbers ranging from one to 24. The difference between the least and greatest numbers that are squares of integers that can be displayed on a standard digital clock is

而如此他称林塔

- 6. 1035. c. 110 c. 1104.

 - e. 1196.

6. John was contracted to work A days. For each of these A days that John actually worked, he received *B* dollars. For each of these *A* days that John did not work, he had to pay a penalty of *C* dollars. After the *A* days of contracted work was a penalty of *C* dollars. After the A days of contracted work was over, John received a net amount of D dollars for his work. How many of the A days of contracted work did John not work?

a. $\frac{AB-D}{B+C}$. b. $\frac{AB+D}{B-C}$. c. $\frac{AB+D}{B+C}$ multitute ## # '\$ 1% mutute # # 'S R Y. b + C d. $\frac{AB-D}{B-C}$. e. Nonmstitute # # ' K maxinte # # 3 PE D-Ce. None of the above. N. 7. If $f(x) = (x+5)^2 + 8$, then what is the sum of the values of x for which f(x) = 12? a. -10.

multille # # 3 PS

mutule ## # 'S PL 面前加根林塔梯 而如此推新林塔梯 mutute # # 'S R . 10. d. 20. juli # # % % e. 20~ b. -7. mutute ###

to the W. B.

to the the the

8. If f(1) = 2 and $f(n+1) = (f(n))^2$, what is the value of f(4)? 面动机机都林塔路 mythille ## # B mutute ## # 'S PE

mittille m ** *

mutule mar ***

multille \$ ** **

而此此他教林後然

multilite # # 'S R

mythute ## # '& K

mutute ## # '\$ 12

to the the the

mutall mark 's

而此此他新祥後席

而此此此新祥後

面前加速新林塔路

mutute # # 'S R

multule ## # 13 1%

to the W- B PR

mistime m # 4 а. b. 16.

Institute \$ 75

R

Y.

N.

Y.

No.

- c. 64. d. 256.
- e. 65,536.

mutute # # 'S PC 9. Let *b* be a positive number such that the system institute # institute \$

·3. 9%

NA N ax + 3y = 15x + ay = b

Institute \$ ** *

mistille # # '& R has an infinite number of solutions. Then, correct to the nearest hundredth, b equals: tute the the tinstitute # mistille # # inte with

- a. 0.60.
- b. 1.29.
- c. 1.67.
- d. 3.87

e. no unique answer.

10. A collection of nickels, dimes and quarters contains 56 coins altogether. The total value of the coins is nine dollars, and the value of the quarters along in the second sec taken together. The number of nickels in the collection is:

MUNITUR ## # 18 18

mythte # # 'S R

to the the the

面射曲線林塔梯

- a_{y} less than 5.
- b. 5, 6 or 7. c. 7. 8
 - c. 7, 8 or 9.
 - d. 10, 11 or 12.
 - e. more than 12.

matine # # 'S R 11. If $2^x = 3$, then 3^x is approximately equal to militule ## #

1. 15 14- 13 1%

Astitute ## # a. 5.2. b. 5.7. c. 6.2. d. 6.8.

e. 7.1.

Ro

N.

12. If the sum of the squares of the lengths of all the sides of a rectangle is 100, then the length of a diagonal of the rectangle is

mythte # # '& K

to the the the

a. $2\sqrt{5}$.

b. $2\sqrt{13}$. $r\sqrt{3}$. d. $5\sqrt{2}$. $c. 4\sqrt{3}$.

to the the the

Ro



17. A wooden cube with volume 64 is sliced in half horizontally. The two halves are then glued together to form a rectangular solid which is not a cube. What is the surface area of this new .vh. mytille # # 3 PS 面的抽版新林塔梯 solid? mstitute ### Thistitute #

multille # # "

mistille # # "

multille the to the the

Withit the the 'S PE

Multinte ## # 18 18

mutute ## # '\$ 1%

the the the the

multille # # 3

moutule # # * * *

mutilite # # '& PL

Institute ## # '\$ 18

面动地推荐林塔梯

matinue ## # '& R

面动地推荐林华

1. 15 15- 13 1%

128. a.

multilite m # "

R

Ro

Ro

R.

Ro

No.

Y.

Ro

112. b.

mistille # ** *

- c. 96.
- d. 56.

18. A function f from the integers to the integers is defined as follows:

minitule # # 3

 $f(n) = \begin{cases} n+3 & \text{if } n \text{ is odd} \\ n/2 & \text{if } n \text{ is even} \end{cases}$

Suppose k is odd and f(f(f(k))) = 27. What is the sum of the digits of k?

matine ## # '\$ 1%

- a. 3.
- b. 6.
- c. 9.
- d. 12.
 - 15. itule e.

19. Let E(n) denote the sum of the even digits of n. For example, E(5681) = 6 + 8 = 14. Find $E(1) + E(2) + E(3) + \dots + E(100).$ matine # # * * * multule # # 'S R 面动机机称林塔张 matitute ## # '\$ 1%

而时间他称林塔路

Astitute ## # 18

to the We the

- 80 withit the the the
 - 200. a. b. 360. c. 400.
 - d. 900.
 - e. 2250.

1/2 Pho

mutute # # '& R

to the the B

20. If $\frac{P(x)}{x-a} = Q(x)$, where P(x) and Q(x) are polynomials, then

a. P(a) = 0.

面射曲線新林塔梯

to the the B

c. *a* is an *x*-intercept of the graph of y = P(x). d. All of the above. mutall # # B

Withthe the the 's PR

to the the B

- e. Insufficient information to answer.

21. In magic squares, the sum of the numbers in each row, each column, and each diagonal is constant. For the given magic square find the value of *B*.

multille m # "

multine m # 3

multine m # 3

multitute m # 3



to the the B

Ro

to the We the the

to the the the

to the the the

W W W W

to the W. B. M.

multine m # "

Ro

multine m # "

25. An 8-ft-by-8-ft area has been tiled with 1-ft-by1-ft tiles. Two of the tiles were defective. What is the probability that the two defective tiles share an edge?

multine m # 3

Institute \$ ** *

mstitute # **

multille # * *



a. 1.8%. b. 2.0%. c. 2.2%. d. 2.4% e. 2.6%

to the the Pho

to the We B

No.

Ro

Institute # **

Institute \$ 75

当川1. 新林莲幣 加化频带送除 tute # * * * 加加斯林塔佛 institute 29. In square ABCD, X lies on \overline{DC} such that DX : XC = 5:2 and Y lies on \overline{BC} such that BY : YC = 3:4. The ratio of the area of $\triangle AXC$ to the area of $\triangle ABY$ is

mutute ## # '& R 而如此他教林塔然 multilite # # 'S R 而时间很新林塔路 加加斯林·诺陀 u. 2:7. b. 2:3. c. 2 N. d. 4:9. 9:16. e.

to the the the

to the bit is the

W W W W

to the We B

30. How many integers x satisfy the equation $(x^2 - x - 1)^{x+2} = 1$? 而时间很新花等除 matine ###

multilite m # 3

2. a.

TURNING MARK S

Astitute #

Ro

Y.

Y.

Y.

N.

N.

Ro

- 3. (1) b.
- c. 4. 5. d.
- None of these. e.,

Institute \$ 75 'S

31. Some motels have balconies for each room. Often these balconies have no exterior supports. When too many people go out on these balconies at events such as family reunions, the balconies collapse. Builders need to determine how much weight a balcony will hold without collapsing. An experiment using pennies for people and a centimeter ruler can be used to simulate the situation described. In the experiment, data is collected by extending the ruler (representing the balcony) beyond the edge of a flat surface. Then pennies (representing people of equal weight) are stacked on the extended edge of the ruler until the ruler falls. The following data was collected for such an experiment.

Institute m # *

multine m M G

mythille ## # B

multure ## # 13 1%

10 the 12- 12 1%

Institute # ******

而此此此新林塔

stitute # # 13 PK

而如此他称林等除

Institute ## # 13 PR

to the the By the

Length of extension (cm)	2	4	6	8	10	12	14
# of pennies supported by ruler	100	55	25	15	12	6	$^{2}2$

面如加加斯林塔梯

mstitute #4 Which of the following equations represents the "curve" of best fit for the data?

a.
$$y = 181.54(.739)^{x}$$
.
b. $y = -7.23x + 88.57$.
c. $y = 1.01x^{2} - 23.38x + 137$.
d. $y = -7.35x + 90.97$.
e. $y = 126.82 - 50.29 \ln x$

to the We the

32. If one solution to the equation $2x^2 + (a-4)x - 2a = 0$ is x = -3, what is the value of a? 面的机机都林塔路 matitute # # * mytitute # # ** Institute # # **

Autitute # # 13 PR

the the the 's

thittle the the stitute ## 0. a. 2. b. 4. с. d. 6. 12. e.

这家 33. A circle is centered at the vertex of the right angle of an isosceles right triangle. The circle passes through the trisection points of the hypotenuse of the triangle. If the length of the radius of the circle is 10, find the area of the triangle.

Astitute # # 13 PR

加北新林等隊 45. b. 60. a. 45. 90.SV d. 105. e.

to the the B



38. An open box is to be created from a nine-inch by twelve-inch piece of posterboard by cutting that will produce the box with maximum volume. Determine that volume to the nearest cubic inch. congruent squares from each corner and folding up the sides. The goal is to cut squares of the size

multille m # "

multine m # 3

multille m # 3

而时间的新祥等

而如此他新祥後

而此此他就林塔然

而时间很新林塔路

而时间很新林塔路

to the W. B. M.

astitute ## # B PR

面的机机器新林塔路

面射机能称林塔然

mythte # # '& K

to the the the

multille m # "

multilite m # "

- 82. a. b. 98.
- c. 118.

multine m # "

- d. 150.
- e.
- matilite # # 'S PS multille # # 3 PS multille # # 'S PE mytille # # 3 PS Institute ## # 39. Each orange tree in a California grove produces 600 oranges per year if no more than 20 trees are planted per acre. For each additional tree planted per acre, the yield decreases by 15 oranges. 面对机机称林塔张 How many trees per acre should be planted to obtain the greatest number of oranges? myittle # # tinstitute ## mutute ## tinstitute ### 资本

mythute # # '& K

mythille ## # '& PL

multilite # # 13 PR

to the the By Ph

- 20. a.
- 22. b.
- 25. c.
- d. 30. e. 32.
- Ro

Ro

N.

N.

Y.

Ro

面的机机都林塔张

mutute # # '& R

而如此他教林塔梯

to the the the

R

Ro

Ro

40. Suppose you toss two fair six-sided dice. Which probability is the greatest?

- *P*(one die is even and the other is odd) a.
- b. *P*(at least one die is prime and the sum is odd).
- c, *P*(the sum is even and the product is a multiple of 5).
- mistitute ### *P*("doubles" and the product is odd) d. '

面的机机都林塔张

面射曲線熱林塔梯

而如此他就林塔路

to the by the the

P(the sum is greater than 9 and one die is less than 4). e.

mutute ## # '& R

maritute # # '\$ 1%

mayinne ## # 18

to the the B