MATHS

BOOKS - INDEPENDENTLY PUBLISHED MATHS (ENGLISH)

PRACTICE TEST 3 - MATHEMATICS TEST

Exercise

1. On level ground, a vertical rod 12 feet tall casis a shadow 4 feet long, and at the same

time a nearby vertical flagpole casts a shadow 12 feet long. How many feet tall is the flagpole?

A. 4

B. 8

C. 12

D. 36

Answer: D

Watch Video Solution

2. Kalino earned 85, 95, 93 and 80 points on the 4 tests, each worth 100 points, given so far this term. How many points must he earn on his test, also worth 100 points, to average 90 points for the 5 tests given this term?

A. 87

B. 88

C. 90

D. 97

Answer: D

Watch Video Solution

3. If x = -5, what is the value of $\left(\frac{x^2-1}{x+1}\right)$?

A. -6

B. -4

C. 4

D. $5\frac{4}{5}$

Answer: A

Watch Video Solution

4. Kaya ran $1\frac{2}{5}$ miles on Monday and $2\frac{1}{3}$ miles on Tuesday. What was the total distance, in miles, Kaya ran during those 2 days?

A. $3\frac{11}{15}$

B. $3\frac{3}{8}$

C. $3\frac{2}{5}$

D. $3\frac{7}{15}$

Answer: A

Watch Video Solution

5. Consider the 3 statements below to be true

All insects that are attracted to honey are ants.

Insect I is not an ant.

Insect J is attracted to honey.

Which of the following statement is necessarily true?

A. Insect I is ant not attracted to honey

B. Insect I is an ant attracted to honey

C. Insert I is attracted to honey

D. Insert J is an ant

Answer: D

Watch Video Solution

6. What is the value of the expression $\sqrt{\frac{m}{x-3}}$ when $x = -1$ and $m = -16$?

A. -2

B. 2

C. $2\sqrt{2}$

D. $2i$

Answer: B

 Watch Video Solution

7. Tickets for a community theater production cost `$6 each when bougth in advance and $8 each when bought at the door. The theater group's goal is at least $2,000 in ticket sales for opening night. The theate group sold 142 opening-night tickets in advance. What is the

minimum number of tickets they need to sell at the door on opening night to make their goal

A. 143

B. 144

C. 192

D. 250

Answer: B

Watch Video Solution

8. Mark and Juanita own a sandwich shop. They offer 3 kinds of bread, 5 kinds of meat, and 3 kinds of cheese. Each type of sandwich has combination of exactly 3 ingredients: 1 bread, 1 meat and 1 cheese. How many types of sandwiches are possible?

A. 11

B. 15

C. 30

D. 45

Answer: D

Watch Video Solution

9. If $12(x - 11) = -15$, then x =?

A. $-\frac{49}{4}$

B. $-\frac{13}{6}$

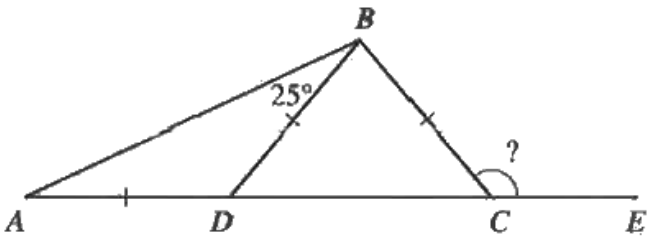
C. $-\frac{5}{4}$

D. $\frac{39}{4}$

Answer: D

Watch Video Solution

10. In the figure below, A, D, C and E are collinear . $\overline{AD}$, $\overline{BD}$, and $\overline{BC}$ are all the same length, and the angle measure of $\angle ABD$ is as marked. What is the degree measure of $\angle BCE$?



A. 50°

B. 100°

C. 105°

D. 130°

Answer: D

Watch Video Solution

11. If $f(x) = 9x^2 + 5x - 8$, then $f(-2)$ = ?

A. -54

B. -18

C. 18

D. 36

Answer: C

Watch Video Solution

12. What is the least common multiple of 30, 20 and 70?

A. 40

B. 42

C. 120

D. 420

Answer: D

 Watch Video Solution

13. While doing a problem on his calculator. Tom meant to divide a number by 2, but instead he accidentally multiplied the number by 2. Which of the following calculations could Tom then do to the result on the calculator

screen to obtain the result he originally wanted?

A. Subtract the original number

B. Multiply by 2

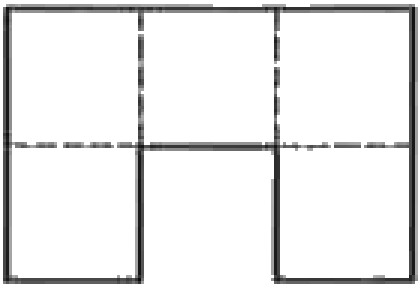
C. Multiply by 4

D. Divide by 4

Answer: D

 Watch Video Solution

14. The 8-sided figure below is divided into 5 congruent squares. The total area of the 5 squares is 125 square inches. What is the perimeter, in inches, of the figure?



A. 25

B. 60

C. 80

D. 100

Answer: B

Watch Video Solution

15. Hai has $100 avialable to buy USB drives to back up data for him business computers. Each USB drive has a price of $8, and Hai will pay a sales tax of 7% of the total prices of the USB drives. What is the maximum number of USB drives Hai can buy?

A. 11

B. 12

C. 13

D. 14

Answer: A

 Watch Video Solution

16. A certain computer performs 1.5×10^8 calculations per second. How many seconds

would it take this computer to perform 6.0×10^{16} calculations?

A. 2.5×10^{-9}

B. 9.0×10^{0}

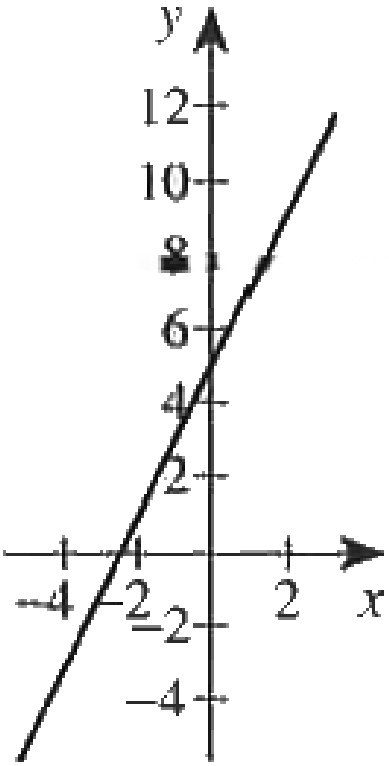
C. 4.0×10^{2}

D. 4.0×10^{8}

Answer: D

Watch Video Solution

17. One of the following is an equation of the linear relation shown in the standard (x, y) coordinate plane below. Which equation is it?



A. $y = 5x$

B. $y = 2x$

C. $y = 5x + 2$

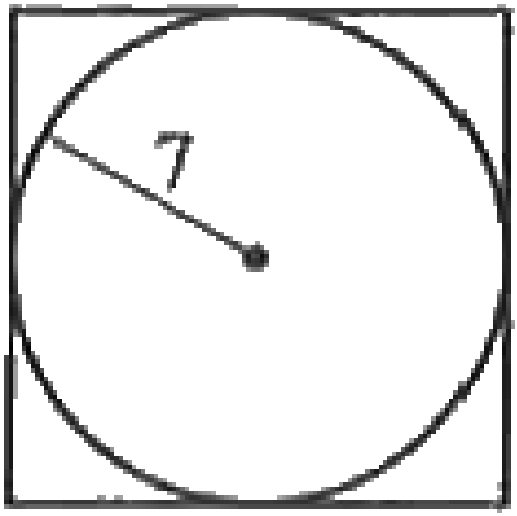
D. $y = 2x + 5$

Answer: D

Watch Video Solution

18. A square is circunscribed about a circle of 7-foot radius, as shown below. What is the

area of the square in square feet?



A. 49

B. 56

C. 98

D. 196

Answer: D

 Watch Video Solution

19. Two worker were hired to begin work at the same time. Worker A's contract called for a starting salary of $20,000 with an increase of $800 after each year of employment. Worker B's contract called for a starting salary of $15,200 with an increase of $2,000 after each year of employment. If x represents the number of full years employment (that is, the

number of yearly increases each worker has received), which of the number of years until B's yearly salary equals A's yearly salary?

A. $20,000 + 800x = 15,200 + 2,000x$

B. $20,000 + 2,000x = 15,200 + 800x$

C. $(20,000 + 800)x = (15,200 + 2,000)x$

D. $(2,000 + 800)x = 20,000 - 15,200$

Answer: A

Watch Video Solution

20. A ramp for loading trucks is 13 feet long and covers 12 feet along the level ground, as shown below. How many feet high is the highest point on the ramp?

A. 1

B. 2

C. 4

D. 5

Answer: D

Watch Video Solution

21. The expression $7(x+3)-3(2x-2)$ is equivalent to :

A. $x+1$

B. $x+15$

C. $x+19$

D. $x+27$

Answer: D

Watch Video Solution

22. If `115% of a number is 460, what is 75% of the number?

A. 280

B. 300

C. 320

D. 345

Answer: B

Watch Video Solution

23. When $(2x-3)^2$ is written in the form ax^2+bx+c where a, b and c are integers, a + b + c = ?

A. -17

B. -5

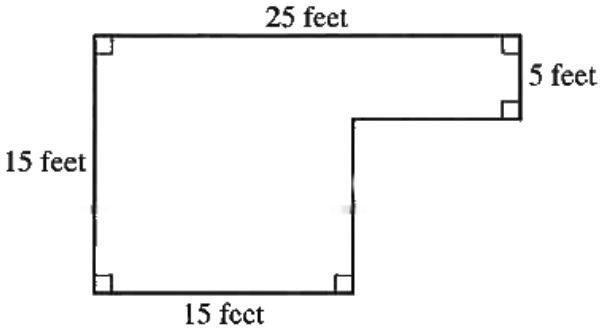
C. 1

D. -1

Answer: C

Watch Video Solution

24. What is the area, in square feet, of the figure below?



A. 60

B. 80

C. 275

D. 375

Answer: C

Watch Video Solution

25. Barb is going to cover a rectangular area 8 feet by 10 feet with rectangular paving blocks that are 4 inches by 8 inches by 2 inches to make a flat patio. What is the minimum number of paving blocks she will need if all the

paving blocks will face the same direction?

(Note: Barb will not cut any of the paving blocks.)

A. 80

B. 360

C. 601

D. 960

Answer: B

Watch Video Solution

26. What is the slope of the line represented by the equation $6y - 14x = 5$?

A. -14

B. $\frac{5}{6}$

C. $\frac{7}{3}$

D. 6

Answer: C

Watch Video Solution

27. Let m and n be 2 positive integers, such that $m < n$. Which of the following compound inequalities must be true?

A. $0 < \sqrt{mn} < m$

B. $1 < \sqrt{mn} < m$

C. $m < \sqrt{mn} < n$

D. $\sqrt{m} < \sqrt{mn} < \sqrt{n}$

Answer: C

Watch Video Solution

28. Two similar triangles have perimeters in the ratio 3:5. The sides of the smaller triangle measure 3 cm, 5 cm, and 7 cmd, respectively. What is the perimeter, in centimeters, of the larger triangle?

A. 15

B. 18

C. 20

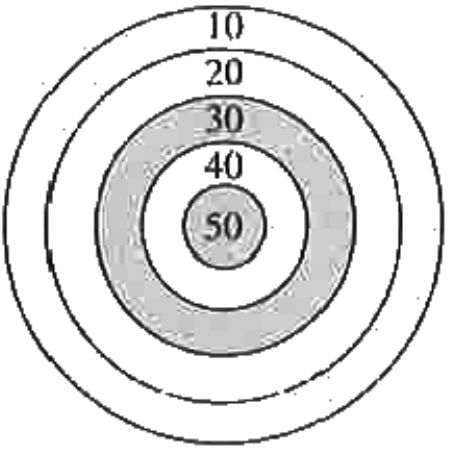
D. 25

Answer: D

Watch Video Solution

29. Thomas and Jonelle are playing darts in their garage using the board with the point value for each region shown below. The radius of the outside circle is 10 inches, and each of the other circles has a radius 2 inches smaller than the next larger circle. All of the circles have the same center. Thomas has only 1 dart left to throw and needs at least 30 points to win the game. Assuming that his last dart hits at a random point within a single region on

the board, what is the percent chance that Thomas will win the game?



A. 36 %

B. 0.3

C. 0.16

D. 0.09

Answer: A

Watch Video Solution

30. When asked his age, the algebra teacher said, " if you square my age, then subtract 23 times my age, the result is 50." How old is he?

A. 23

B. 25

C. 27

D. 46

Answer: B

Watch Video Solution

31. The distance, d, an acceleration rate, in meters per second per second. If a car accelerates from a stop at the rate of 20 meters per second per second and travels a distance of 80 meters, about how many seconds did the car travel?

A. Between 1 and 2

B. Between 2 and 3

C. Between 3 and 4

D. 4

Answer: B

Watch Video Solution

32. Which of following is the set of all real numbers x such that $x + 3 > x + 5$?

A. The empty set

B. The set containing all real numbers

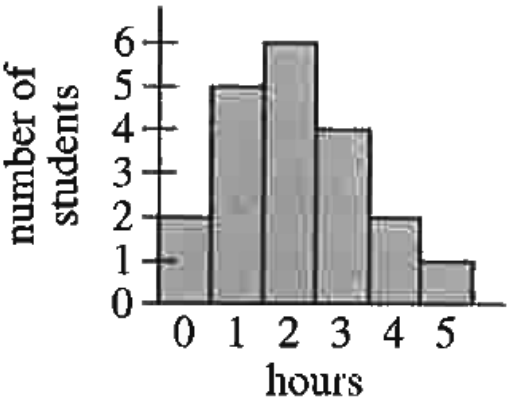
C. The set containing all nonnegative real numbers

D. The set containing all positive real numbers

Answer: A

 Watch Video Solution

33. A survey in a study skills class asked the 20 students enrolled in the class how many hours (rounded to the nearest hour) they had spent studying on the previous evening. The 20 responses are summarized by the histogram below.



What fraction of the students responded that they had spent less than 3 hours studing?

A. $\frac{13}{100}$

B. $\frac{1}{5}$

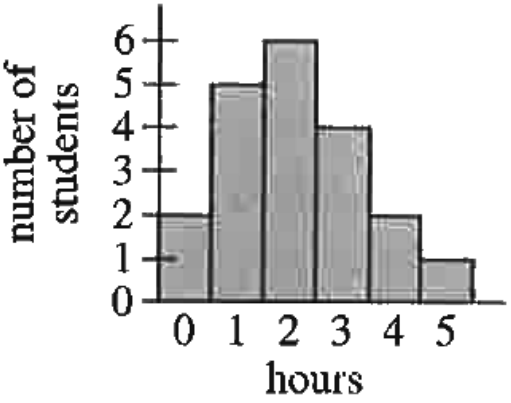
C. $\frac{3}{10}$

D. $\frac{13}{20}$

Answer: D

Watch Video Solution

34. A survey in a study skills class asked the 20 students enrolled in the class how many hours (rounded to the nearest hour) they had spent studying on the previous evening. The 20 responses are summarized by the histogram below.



The teacher decides to show the data in a

circle graph (pie chart). What should be the measure of the central angle of the sector for 3 hours?

A. 18°

B. 20°

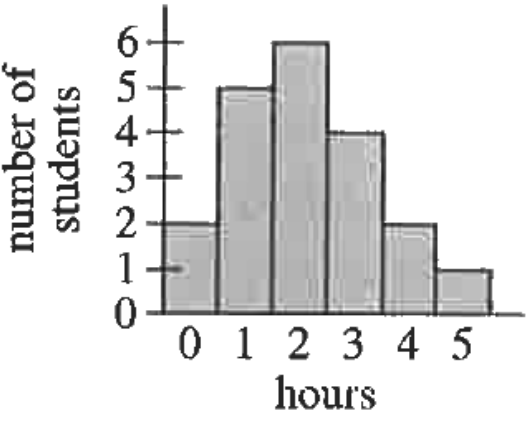
C. 36°

D. 72°

Answer: D

Watch Video Solution

35. A survey in a study skills class asked the 20 students enrolled in the class how many hours (rounded to the nearest hour) they had spent studying on the previous evening. The 20 responses are summarized by the histogram below.



To the nearest tenth of an hour, what is the

average number of hours for the 20 survey responses?

A. 2.0

B. 2.1

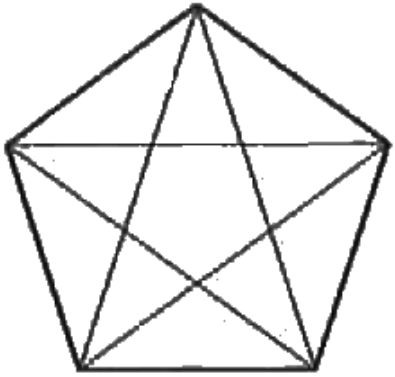
C. 2.3

D. 2.5

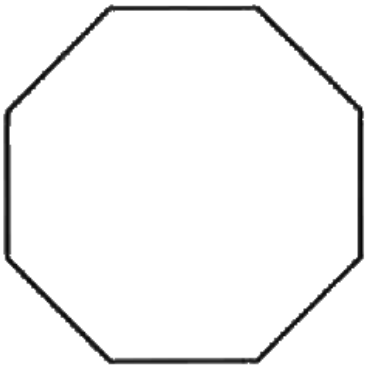
Answer: B

Watch Video Solution

36. Pentagons have 5 diagonals, as illustrated below.



How many diagonals does the octagon below have?



A. 8

B. 16

C. 20

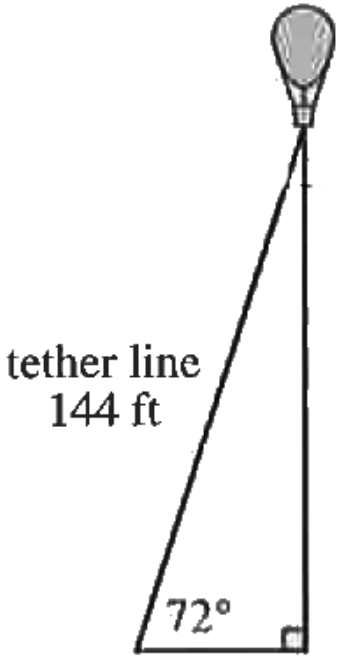
D. 30

Answer: C

View Text Solution

37. The bottom of the basket of a hot-air balloon is parallel to the level ground. One taut tether line 144 feet long is attached to

the centre of the bottom of the basket and is anchored to the ground at an angle of 72°, as shown in the figure below. Which of the following expressions gives the distance, in feet, from the center of the bottom of the basket to the ground?



A. $\frac{144}{\cos 72^\circ}$

B. $\frac{144}{\sin 72^\circ}$

C. $144\tan 72^\circ$

D. $144\sin 72^\circ$

Answer: D

Watch Video Solution

38. The coordinates of the endpoints of $\overline{GH}$, in the standard (x,y) coordinate plane, are (-8,

-3) and (2,3). What is the x-coordinate of the midpoint of $\overline{GH}$?

A. -6

B. -3

C. 0

D. 3

Answer:

Watch Video Solution

39. Let $2x + 3y = 4$ and $5x + 6y = 7$. What is the value of $8x + 9y$?

A. -10

B. -1

C. 2

D. 10

Answer: D

Watch Video Solution

40. What are the value of θ, between 0 and 2π, when $\tan\theta = -1$?

A. $\frac{\pi}{4}$ and $\frac{3\pi}{4}$ only

B. $\frac{3\pi}{4}$ and $\frac{5\pi}{4}$ only

C. $\frac{3\pi}{4}$ and $\frac{7\pi}{4}$ only

D. $\frac{5\pi}{4}$ and $\frac{7\pi}{4}$ only

Answer: C

View Text Solution

41. For the complex number i and an interger x, which of the following is a possible value of i^x?

A. 0

B. 1

C. 2

D. 3

Answer: B

Watch Video Solution

42. A can of soda pop has the shape of a right circular cylinder with an inside height of 6 inches and an inside diameter of 2 inches. When you pour the soda pop from the full can into a cylindrical glas with an inside diameter of 3 inches, about how many inches high is the soda pop in the glass?

(Note: The volume of a right circular cylinder is $\pi r^2 h$)

A. $2\frac{2}{3}$

B. 4

C. 5

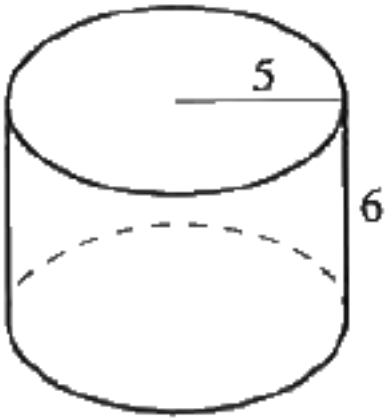
D. $6\frac{2}{3}$

Answer: A

Watch Video Solution

43. The height and radius of the right circular cylinder below are given in meters. What is the

volume, in cubic meters, of the cylinder?



A. 30π

B. 31π

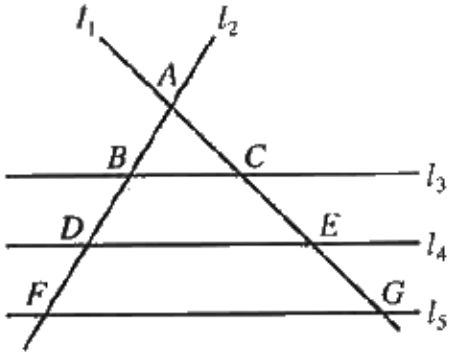
C. 150π

D. 180π

Answer: C

Watch Video Solution

44. Lines l_2 and l_2 intersect each other and 3 parallel lines, l_3, l_4 and l_5, at the points shown in the figure below. The ratio of the perimeter of $\triangle ABC$ to the perimeter of $\triangle AFG$ is 1:3 . The ratio of DE to FG is 2:3. What is the ratio of AC to CE?



A. $1:1$

B. $1:2$

C. $1:3$

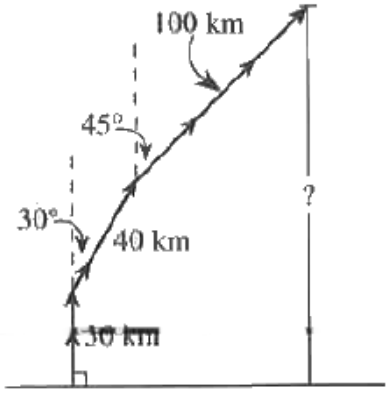
D. $2:1$

Answer: A

Watch Video Solution

45. A rocket lifted off from a launch pad and traveled vertically 30 kilometers, then traveled 40 kilometers at 30° from the verical, and

then traveled 100 kilometers at 45° from the vertical, as shown in the figure below. At that point, the rocket was how many kilometers above the height of the launched pad?



A. 100

B. 170

C. 190

D. $30 + 20\sqrt{3} + 50\sqrt{2}$

Answer: D

View Text Solution

46. Machine A produces 500 springs a day. The number of defective springs produced by this machine each day is recorded for 60 days. Based on the distribution given below. What is the expected value of the number of defective springs produced by Machine A in any single

day?

Number, n, of defective springs produced	Probability that n defective springs are produced in any single day
0	0.70
1	0.20
2	0.05
3	0.05

A. 0.00

B. 0.45

C. 0.70

D. 1.00

Answer: B

Watch Video Solution

47. The height above the ground, h units, of an objects t seconds after being thrown from the top of a building is give by the equation $h = -2t^2 + 10t + 48$. An equivalent factored form of this equation shows that the object:

A. starts at a point 2 units off the ground

B. reaches a maximum height of 3 units

C. reaches a maximum height of 8 units.

D. reaches the groud at 8 seconds.

Answer: D

View Text Solution

48. For all positive values of g and h, which of the following expressions is equivalent to $g^2\sqrt{g^5}\cdot h^2\sqrt[4]{h^5}$?

A. $g^2h^2\sqrt[5]{g^2h^2}$

B. $g^3h\sqrt[4]{g^2h^3}$

C. $g^4h^3\sqrt[4]{g^2h}$

D. $g^4h^4\sqrt[4]{g^2h}$

Answer: C

Watch Video Solution

49. The value of $\log_e\left(5^{\frac{13}{2}}\right)$ is between which of the following pairs of consecutive integers?

A. 0 and 1

B. 4 and 5

C. 5 and 6

D. 6 and 7

Answer: D

View Text Solution

50. A storage facility is currently offering a special rate to customers who sign contracts for 6 months or more. According to this special rate, the first month's rent is $1, and for each month after the first month, customers pay the regular monthly rental rate. The table below shows the storage unit sizes avialble, the floor dimensions, and the regular monthly rental rate. All the units have the same heigher.

Size	Floor dimensions, in meters	Regular monthly rental rate
1	2 × 4	$ 30
2	4 × 4	$ 60
3	4 × 8	$100
4	8 × 8	$150
5	8 × 16	$200

Daria will sign a contract to rent a Size 3 unit for 12 months at the current special rate. The amount Daria will pay for 12 months at the current special rate represents what decrase from the regular rental rate for 12 months?

A. 0.0825

B. 0.0833

C. 0.0842

D. 0.09

Answer: A

View Text Solution

51. A storage facility is currently offering a special rate to customers who sign contracts for 6 months or more. According to this special rate, the first month's rent is $1, and for each month after the first month, customers pay the regular monthly rental rate. The table

below shows the storage unit sizes avialble, the floor dimensions, and the regular monthly rental rate. All the units have the same heigher.

Size	Floor dimensions, in meters	Regular monthly rental rate
1	2 × 4	$ 30
2	4 × 4	$ 60
3	4 × 8	$100
4	8 × 8	$150
5	8 × 16	$200

Size 5 units can be subdivided to form other sizes of units. What is the greatest number of Size 1 units that can be formed from a single size 5 unit?

A. 2

B. 4

C. 8

D. 16

Answer: D

View Text Solution

52. A storage facility is currently offering a special rate to customers who sign contracts for 6 months or more. According to this special rate, the first month's rent is $1, and for

each month after the first month, customers pay the regular monthly rental rate. The table below shows the storage unit sizes avialble, the floor dimensions, and the regular monthly rental rate. All the units have the same heigher.

Size	Floor dimensions, in meters	Regular monthly rental rate
1	2 × 4	$ 30
2	4 × 4	$ 60
3	4 × 8	$100
4	8 × 8	$150
5	8 × 16	$200

Janelle, the owner of the storage facility, is considering building new units that have floor dimensions larger than size 5 units. She will

use the floor area to determine the heating requirements of these larger units. For this calculation, Janelle will use the same relationship between the unit size number and the respective floor area for sizes 1 through 5, which of the following expressions gives the floor area, in square meters, of a Size x storage unit?

A. $2^3 \cdot x$

B. 2^{3x}

C. 2^{2+x}

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

Answer: C

View Text Solution

53. The component forms of vectors u and v are given by $u = u = \langle 5, 3 \rangle$ and $v = \langle 2, -7 \rangle$. Given that $2u + (-3v) + w = 0$, what is the component form of w?

A. $\langle -16, 15 \rangle$

B. $\langle -4, -27 \rangle$

C. $\langle 3, 10 \rangle$

D. $\langle 4, 27 \rangle$

Answer: B

Watch Video Solution

54. For how many intergers x is the equation $3^{x+1} = 9^{x-2}$ true?

A. 0

B. 1

C. 2

D. 3

Answer: B

 Watch Video Solution

55. Which of the following expressions gives the number of distinct permutations of the letters in PEOPLE?

A. $6!$

B. $4(4!)$

C. $\frac{6!}{4!}$

D. $\frac{6!}{(2!)(2!)}$

Answer: D

View Text Solution

56. Which of the following expressions is equivalent to $49x^2 + 81$?

A. $(7x + 9)^2$

B. $(7x + 9i)^2$

C. $(7x - 9i)^2$

D. $(7x - 9i)(7x + 9i)$

Answer: D

Watch Video Solution