Lightning round notes

- Runner should change every 20 minutes - exercise is good for all!
- Runner always sets off to the back of their column of teams FIRST.
- Correct attempt 1=3 points. Correct attempt 2=2 points. 1 point thereafter.
- Teams may pass after at least 3 attempts, that question cannot then be returned to.
- To determine rank when final points are tied, the number of passes is considered.

Lightning round notes

- Runner should change every 20 minutes - exercise is good for all!
- Runner always sets off to the back of their column of teams FIRST.
- Correct attempt 1=3 points. Correct attempt 2=2 points. 1 point thereafter.
- Teams may pass after at least 3 attempts, that question cannot then be returned to.
- To determine rank when final points are tied, the number of passes is considered.

Lightning round notes

- Runner should change every 20 minutes - exercise is good for all!
- Runner always sets off to the back of their column of teams FIRST.
- Correct attempt 1=3 points. Correct attempt 2=2 points. 1 point thereafter.
- Teams may pass after at least 3 attempts, that question cannot then be returned to.
- To determine rank when final points are tied, the number of passes is considered.

Lightning round notes

- Runner should change every 20 minutes - exercise is good for all!
- Runner always sets off to the back of their column of teams FIRST.
- Correct attempt 1=3 points. Correct attempt 2=2 points. 1 point thereafter.
- Teams may pass after at least 3 attempts, that question cannot then be returned to.
- To determine rank when final points are tied, the number of passes is considered.

Practise : If it takes 15 musicians 60 minutes to play a song, how long does it take 20 musicians to play the same song?

Answer:

Practise : If it takes 15 musicians 60 minutes to play a song, how long does it take 20 musicians to play the same song?

Answer:

Practise : If it takes 15 musicians 60 minutes to play a song, how long does it take 20 musicians to play the same song?

Answer:

Practise : If it takes 15 musicians 60 minutes to play a song, how long does it take 20 musicians to play the same song?

Answer:

1.

Let $f(x) = x^2 + bx - 20$.

If $f(4) = f'(4)$, find the value of b.

Answer:

1.

Let $f(x) = x^2 + bx - 20$.

If $f(4) = f'(4)$, find the value of b.

Answer:

1.

Let $f(x) = x^2 + bx - 20$.

If $f(4) = f'(4)$, find the value of b.

Answer:

1.

Let $f(x) = x^2 + bx - 20$.

If $f(4) = f'(4)$, find the value of b.

Answer:

2.

Find the largest root of $x^4 - x^3 - 3x^2 + 2x + 2 = 0$.

Answer:

2.

Find the largest root of $x^4 - x^3 - 3x^2 + 2x + 2 = 0$.

Answer:

2.

Find the largest root of $x^4 - x^3 - 3x^2 + 2x + 2 = 0$.

Answer:

2.

Find the largest root of $x^4 - x^3 - 3x^2 + 2x + 2 = 0$.

Answer:

3.

Let $S = \{24, 27, 56, 63, x\}$ be a set of 5 positive integers.

If the mean is a prime number, and the median is a multiple of 3, find the sum of all possible values of x.

Answer:

3.

Let $S = \{24, 27, 56, 63, x\}$ be a set of 5 positive integers.

If the mean is a prime number, and the median is a multiple of 3, find the sum of all possible values of x.

Answer:

3.

Let $S = \{24, 27, 56, 63, x\}$ be a set of 5 positive integers.

If the mean is a prime number, and the median is a multiple of 3, find the sum of all possible values of x.

Answer:

3.

Let $S = \{24, 27, 56, 63, x\}$ be a set of 5 positive integers.

If the mean is a prime number, and the median is a multiple of 3, find the sum of all possible values of x.

Answer:

4.

If $f(x) + 2f(6 - x) = x^2$, find $f(2)$.

Write your answer in the form $\frac{a}{b}$.

Answer:

4.

If $f(x) + 2f(6 - x) = x^2$, find $f(2)$.

Write your answer in the form $\frac{a}{b}$.

Answer:

4.

If $f(x) + 2f(6 - x) = x^2$, find $f(2)$.

Write your answer in the form $\frac{a}{b}$.

Answer:

4.

If $f(x) + 2f(6 - x) = x^2$, find $f(2)$.

Write your answer in the form $\frac{a}{b}$.

Answer:

5.

If $y = bx - 10$ is tangent to $y = x^2 + 2x + 6$, find all possible values of b.

Answer:

5.

If $y = bx - 10$ is tangent to $y = x^2 + 2x + 6$, find all possible values of b.

Answer:

5.

If $y = bx - 10$ is tangent to $y = x^2 + 2x + 6$, find all possible values of b.

Answer:

5.

If $y = bx - 10$ is tangent to $y = x^2 + 2x + 6$, find all possible values of b.

Answer:

6.

If $\sqrt{a}-b$ is a root of $x^2+ax-b=0$ and if $\sqrt{a}+b$ is a root of $x^2-ax-b=0$, where $a, b \neq 0$, find the value of $a+b$.

Answer:

6.

If $\sqrt{a}-b$ is a root of $x^2+ax-b=0$ and if $\sqrt{a}+b$ is a root of $x^2-ax-b=0$, where $a, b \neq 0$, find the value of $a+b$.

Answer:

6.

If $\sqrt{a}-b$ is a root of $x^2+ax-b=0$ and if $\sqrt{a}+b$ is a root of $x^2-ax-b=0$, where $a, b \neq 0$, find the value of $a+b$.

Answer:

6.

If $\sqrt{a}-b$ is a root of $x^2+ax-b=0$ and if $\sqrt{a}+b$ is a root of $x^2-ax-b=0$, where $a, b \neq 0$, find the value of $a+b$.

Answer:

7.

Find the perimeter of a rectangle with area 72 that is inscribed in a circle of radius 6.

Answer:

7.

Find the perimeter of a rectangle with area 72 that is inscribed in a circle of radius 6.

Answer:

7.

Find the perimeter of a rectangle with area 72 that is inscribed in a circle of radius 6.

Answer:

7.

Find the perimeter of a rectangle with area 72 that is inscribed in a circle of radius 6.

Answer:

8.

Find $\lim_{x \to \infty} \left(\sqrt{4x^2 + 8x} - 2x\right)$

Answer:

8.

Find $\lim_{x \to \infty} \left(\sqrt{4x^2 + 8x} - 2x\right)$

Answer:

8.

Find $\lim_{x \to \infty} \left(\sqrt{4x^2 + 8x} - 2x\right)$

Answer:

8.

Find $\lim_{x \to \infty} \left(\sqrt{4x^2 + 8x} - 2x\right)$

Answer:

9.

An object is moving along the $x-$ axis with its position $x(t) = 5t^4 - t^5$ at any time $t \geq 0$.

Find the total distance traveled from $t = 0$ to $t = 5$.

Answer:

9.

An object is moving along the $x-$ axis with its position $x(t) = 5t^4 - t^5$ at any time $t \geq 0$.

Find the total distance traveled from $t = 0$ to $t = 5$.

Answer:

9.

An object is moving along the $x-$ axis with its position $x(t) = 5t^4 - t^5$ at any time $t \geq 0$.

Find the total distance traveled from $t = 0$ to $t = 5$.

Answer:

9.

An object is moving along the $x-$ axis with its position $x(t) = 5t^4 - t^5$ at any time $t \geq 0$.

Find the total distance traveled from $t = 0$ to $t = 5$.

Answer:

10.

In triangle ABC, point D is on $\overline{AC}$ so that $BD = DC = AD$.

If $BC = 8$ and $AC = 12$, find the length of $\overline{AB}$.

Answer:

10.

In triangle ABC, point D is on $\overline{AC}$ so that $BD = DC = AD$.

If $BC = 8$ and $AC = 12$, find the length of $\overline{AB}$.

Answer:

10.

In triangle ABC, point D is on $\overline{AC}$ so that $BD = DC = AD$.

If $BC = 8$ and $AC = 12$, find the length of $\overline{AB}$.

Answer:

10.

In triangle ABC, point D is on $\overline{AC}$ so that $BD = DC = AD$.

If $BC = 8$ and $AC = 12$, find the length of $\overline{AB}$.

Answer:

11.

Evaluate $\int_1^2 \sqrt{4-x^2}dx.$

Answer:

11.

Evaluate $\int_1^2 \sqrt{4-x^2}dx.$

Answer:

11.

Evaluate $\int_1^2 \sqrt{4-x^2}dx.$

Answer:

11.

Evaluate $\int_1^2 \sqrt{4-x^2}dx.$

Answer:

12.

Given that $a < b < c$, find the value of b if:

$a + b + c = 3$

$ab + bc + ac = -2$

and $abc = -2$.

Answer:

12.

Given that $a < b < c$, find the value of b if:

$a + b + c = 3$

$ab + bc + ac = -2$

and $abc = -2$.

Answer:

12.

Given that $a < b < c$, find the value of b if:

$a + b + c = 3$

$ab + bc + ac = -2$

and $abc = -2$.

Answer:

12.

Given that $a < b < c$, find the value of b if:

$a + b + c = 3$

$ab + bc + ac = -2$

and $abc = -2$.

Answer:

13.

Solve $5^{1-4x^2} = \sin(\pi x)$, for $0 < x < 1$.

Answer:

13.

Solve $5^{1-4x^2} = \sin(\pi x)$, for $0 < x < 1$.

Answer:

13.

Solve $5^{1-4x^2} = \sin(\pi x)$, for $0 < x < 1$.

Answer:

13.

Solve $5^{1-4x^2} = \sin(\pi x)$, for $0 < x < 1$.

Answer:

14.

A pentagon is formed by cutting a triangular corner from a rectangle. The sides of the pentagon measure $7, 9, 15, 16, \text{ and } 21.$

Find the area of the pentagon.

Answer:

14.

A pentagon is formed by cutting a triangular corner from a rectangle. The sides of the pentagon measure $7, 9, 15, 16, \text{ and } 21.$

Find the area of the pentagon.

Answer:

14.

A pentagon is formed by cutting a triangular corner from a rectangle. The sides of the pentagon measure $7, 9, 15, 16, \text{ and } 21.$

Find the area of the pentagon.

Answer:

14.

A pentagon is formed by cutting a triangular corner from a rectangle. The sides of the pentagon measure $7, 9, 15, 16, \text{ and } 21.$

Find the area of the pentagon.

Answer:

15.

Find the minimum value of $(x+2)(x+4)(x+6)(x+8)+2024$.

Answer:

15.

Find the minimum value of $(x+2)(x+4)(x+6)(x+8)+2024$.

Answer:

15.

Find the minimum value of $(x+2)(x+4)(x+6)(x+8)+2024$.

Answer:

15.

Find the minimum value of $(x+2)(x+4)(x+6)(x+8)+2024$.

Answer:

16.

Two bugs are sitting at a corner of a $2x2x2$ cube. They each head to the opposite corner. One flies, while the other walks, and they both take the shortest possible path.

How much shorter is the path for the flying bug than the walking bug?

Answer:

16.

Two bugs are sitting at a corner of a $2x2x2$ cube. They each head to the opposite corner. One flies, while the other walks, and they both take the shortest possible path.

How much shorter is the path for the flying bug than the walking bug?

Answer:

16.

Two bugs are sitting at a corner of a $2x2x2$ cube. They each head to the opposite corner. One flies, while the other walks, and they both take the shortest possible path.

How much shorter is the path for the flying bug than the walking bug?

Answer:

16.

Two bugs are sitting at a corner of a $2x2x2$ cube. They each head to the opposite corner. One flies, while the other walks, and they both take the shortest possible path.

How much shorter is the path for the flying bug than the walking bug?

Answer:

17.

An arithmetic sequence has the first four terms: a, $2a$, b, $\text{ and }\ a-6-b$.

Find the 50th term of this sequence.

Answer:

17.

An arithmetic sequence has the first four terms: a, $2a$, b, $\text{ and }\ a-6-b$.

Find the 50th term of this sequence.

Answer:

17.

An arithmetic sequence has the first four terms: a, $2a$, b, $\text{ and }\ a-6-b$.

Find the 50th term of this sequence.

Answer:

17.

An arithmetic sequence has the first four terms: a, $2a$, b, $\text{ and }\ a-6-b$.

Find the 50th term of this sequence.

Answer:

18.

For how many integer values, k, do the graphs of $y = -\frac{1}{4}x^2 + 5$ and $y = x^2 - k$ intersect above the $x-$ axis?

Answer:

18.

For how many integer values, k, do the graphs of $y = -\frac{1}{4}x^2 + 5$ and $y = x^2 - k$ intersect above the $x-$ axis?

Answer:

18.

For how many integer values, k, do the graphs of $y = -\frac{1}{4}x^2 + 5$ and $y = x^2 - k$ intersect above the $x-$ axis?

Answer:

18.

For how many integer values, k, do the graphs of $y = -\frac{1}{4}x^2 + 5$ and $y = x^2 - k$ intersect above the $x-$ axis?

Answer:

19.

Give all ordered triples (a, b, c) that satisfy the system:

$a + \log_{10}(a) = b - 1$

$b + \log_{10}(b - 1) = c - 1$

$c + \log_{10}(c - 2) = a + 2$

Answer:

19.

Give all ordered triples (a, b, c) that satisfy the system:

$a + \log_{10}(a) = b - 1$

$b + \log_{10}(b - 1) = c - 1$

$c + \log_{10}(c - 2) = a + 2$

Answer:

19.

Give all ordered triples (a, b, c) that satisfy the system:

$a + \log_{10}(a) = b - 1$

$b + \log_{10}(b - 1) = c - 1$

$c + \log_{10}(c - 2) = a + 2$

Answer:

19.

Give all ordered triples (a, b, c) that satisfy the system:

$a + \log_{10}(a) = b - 1$

$b + \log_{10}(b - 1) = c - 1$

$c + \log_{10}(c - 2) = a + 2$

Answer:

20.

A line through the origin is tangent to $y = x^3 + 3x + 3$ at the point (a, b). Find the value of a. Express the answer in the form $\frac{\sqrt[3]{p}}{q}$, where p and q are natural numbers.

Answer:

20.

A line through the origin is tangent to $y = x^3 + 3x + 3$ at the point (a, b). Find the value of a. Express the answer in the form $\frac{\sqrt[3]{p}}{q}$, where p and q are natural numbers.

Answer:

20.

A line through the origin is tangent to $y = x^3 + 3x + 3$ at the point (a, b). Find the value of a. Express the answer in the form $\frac{\sqrt[3]{p}}{q}$, where p and q are natural numbers.

Answer:

20.

A line through the origin is tangent to $y = x^3 + 3x + 3$ at the point (a, b). Find the value of a. Express the answer in the form $\frac{\sqrt[3]{p}}{q}$, where p and q are natural numbers.

Answer:

21. The altitude of a triangle is the perpendicular line segment drawn from a vertex of the triangle to the side opposite to it.

Triangle ABC has $AB = 3$, $AC = 4$ and $BC = 5$. An ant starts at point A, and walks along:

the altitude AD, then the altitude of triangle ADC to point E on side $\overline{AC}$, then the altitude of triangle DEC to point F on side $\overline{DC}$.

This pattern continues forever. What is the total distance the ant travels?

Answer:

21. The altitude of a triangle is the perpendicular line segment drawn from a vertex of the triangle to the side opposite to it.

Triangle ABC has $AB = 3$, $AC = 4$ and $BC = 5$. An ant starts at point A, and walks along:

the altitude AD, then the altitude of triangle ADC to point E on side $\overline{AC}$, then the altitude of triangle DEC to point F on side $\overline{DC}$.

This pattern continues forever. What is the total distance the ant travels?

Answer:

21. The altitude of a triangle is the perpendicular line segment drawn from a vertex of the triangle to the side opposite to it.

Triangle ABC has $AB = 3$, $AC = 4$ and $BC = 5$. An ant starts at point A, and walks along:

the altitude AD, then the altitude of triangle ADC to point E on side $\overline{AC}$, then the altitude of triangle DEC to point F on side $\overline{DC}$.

This pattern continues forever. What is the total distance the ant travels?

Answer:

21. The altitude of a triangle is the perpendicular line segment drawn from a vertex of the triangle to the side opposite to it.

Triangle ABC has $AB = 3$, $AC = 4$ and $BC = 5$. An ant starts at point A, and walks along:

the altitude AD, then the altitude of triangle ADC to point E on side $\overline{AC}$, then the altitude of triangle DEC to point F on side $\overline{DC}$.

This pattern continues forever. What is the total distance the ant travels?

Answer:

22.

Give all the real, positive roots of f if $f\left(x^{\frac{1}{8}}\right) = x^2 - 2x - 8.$

Answer:

22.

Give all the real, positive roots of f if $f\left(x^{\frac{1}{8}}\right) = x^2 - 2x - 8.$

Answer:

22.

Give all the real, positive roots of f if $f\left(x^{\frac{1}{8}}\right) = x^2 - 2x - 8.$

Answer:

22.

Give all the real, positive roots of f if $f\left(x^{\frac{1}{8}}\right) = x^2 - 2x - 8.$

Answer:

23.

Find the smallest $y-$ ordinate value of the polar graph $r = \sin(\theta) + 1$.

Answer:

23.

Find the smallest $y-$ ordinate value of the polar graph $r = \sin(\theta) + 1$.

Answer:

23.

Find the smallest $y-$ ordinate value of the polar graph $r = \sin(\theta) + 1$.

Answer:

23.

Find the smallest $y-$ ordinate value of the polar graph $r = \sin(\theta) + 1$.

Answer:

24.

Let $a(t) = \cos^2(2t)$ be the acceleration at time t of a point moving on a straight line.

At time $t = 0$, the point has velocity $v = -2$. Find its velocity at time $t = 2$.

Write your answer in the form: $a\sin(b) + c$.

Answer:

24.

Let $a(t) = \cos^2(2t)$ be the acceleration at time t of a point moving on a straight line.

At time $t = 0$, the point has velocity $v = -2$. Find its velocity at time $t = 2$.

Write your answer in the form: $a\sin(b) + c$.

Answer:

24.

Let $a(t) = \cos^2(2t)$ be the acceleration at time t of a point moving on a straight line.

At time $t = 0$, the point has velocity $v = -2$. Find its velocity at time $t = 2$.

Write your answer in the form: $a\sin(b) + c$.

Answer:

24.

Let $a(t) = \cos^2(2t)$ be the acceleration at time t of a point moving on a straight line.

At time $t = 0$, the point has velocity $v = -2$. Find its velocity at time $t = 2$.

Write your answer in the form: $a\sin(b) + c$.

Answer:

25.

How many real solutions does the equation $(x^2 - 4)^{x^2 - 2x} = 1$ have?

Answer:

25.

How many real solutions does the equation $(x^2 - 4)^{x^2 - 2x} = 1$ have?

Answer:

25.

How many real solutions does the equation $(x^2 - 4)^{x^2 - 2x} = 1$ have?

Answer:

25.

How many real solutions does the equation $(x^2 - 4)^{x^2 - 2x} = 1$ have?

Answer:

26.

Let $ABCDE$ be a regular pentagon. The ratio $\frac{BE}{AB} = a\cos(b)$, where a is a natural number and b is in degrees. Find $a + b$.

Answer:

26.

Let $ABCDE$ be a regular pentagon. The ratio $\frac{BE}{AB} = a\cos(b)$, where a is a natural number and b is in degrees. Find $a + b$.

Answer:

26.

Let $ABCDE$ be a regular pentagon. The ratio $\frac{BE}{AB} = a\cos(b)$, where a is a natural number and b is in degrees. Find $a + b$.

Answer:

26.

Let $ABCDE$ be a regular pentagon. The ratio $\frac{BE}{AB} = a\cos(b)$, where a is a natural number and b is in degrees. Find $a + b$.

Answer:

27.

Let $ABCD$ be a rhombus and point E is the intersection of the diagonals.

Point M is on $\overline{DC}$ so that $\overline{EM} \perp \overline{DC}$.

If $EM = 3 \text{ and } DM = 2$, find the area of the rhombus.

Answer:

27.

Let $ABCD$ be a rhombus and point E is the intersection of the diagonals.

Point M is on $\overline{DC}$ so that $\overline{EM} \perp \overline{DC}$.

If $EM = 3 \text{ and } DM = 2$, find the area of the rhombus.

Answer:

27.

Let $ABCD$ be a rhombus and point E is the intersection of the diagonals.

Point M is on $\overline{DC}$ so that $\overline{EM} \perp \overline{DC}$.

If $EM = 3 \text{ and } DM = 2$, find the area of the rhombus.

Answer:

27.

Let $ABCD$ be a rhombus and point E is the intersection of the diagonals.

Point M is on $\overline{DC}$ so that $\overline{EM} \perp \overline{DC}$.

If $EM = 3 \text{ and } DM = 2$, find the area of the rhombus.

Answer:

28.

Roger and Rafael play in a tennis tournament. To win the match, a player must win 3 sets.

Roger wins the first set. For the sets that follow, if each player has a fifty-fifty chance of winning a set, what is the probability that Roger wins the match?

Answer:

28.

Roger and Rafael play in a tennis tournament. To win the match, a player must win 3 sets.

Roger wins the first set. For the sets that follow, if each player has a fifty-fifty chance of winning a set, what is the probability that Roger wins the match?

Answer:

28.

Roger and Rafael play in a tennis tournament. To win the match, a player must win 3 sets.

Roger wins the first set. For the sets that follow, if each player has a fifty-fifty chance of winning a set, what is the probability that Roger wins the match?

Answer:

28.

Roger and Rafael play in a tennis tournament. To win the match, a player must win 3 sets.

Roger wins the first set. For the sets that follow, if each player has a fifty-fifty chance of winning a set, what is the probability that Roger wins the match?

Answer:

29.

The sides of a parallelogram measure 3 and 8. The shorter diagonal measures 8. Find the length of the longer diagonal.

Answer:

29.

The sides of a parallelogram measure 3 and 8. The shorter diagonal measures 8. Find the length of the longer diagonal.

Answer:

29.

The sides of a parallelogram measure 3 and 8. The shorter diagonal measures 8. Find the length of the longer diagonal.

Answer:

29.

The sides of a parallelogram measure 3 and 8. The shorter diagonal measures 8. Find the length of the longer diagonal.

Answer:

30.

A piece of wire is cut into two pieces at a point that is randomly selected. Find the probability that the longer piece is at least 6 times as large as the shorter piece.

Answer:

30.

A piece of wire is cut into two pieces at a point that is randomly selected. Find the probability that the longer piece is at least 6 times as large as the shorter piece.

Answer:

30.

A piece of wire is cut into two pieces at a point that is randomly selected. Find the probability that the longer piece is at least 6 times as large as the shorter piece.

Answer:

30.

A piece of wire is cut into two pieces at a point that is randomly selected. Find the probability that the longer piece is at least 6 times as large as the shorter piece.

Answer:

31.

Evaluate $\int_0^4 e^{\sqrt{x}} dx.$

Answer:

31.

Evaluate $\int_0^4 e^{\sqrt{x}} dx.$

Answer:

31.

Evaluate $\int_0^4 e^{\sqrt{x}} dx.$

Answer:

31.

Evaluate $\int_0^4 e^{\sqrt{x}} dx.$

Answer:

32.

If $a_n = 1 + \sqrt{\frac{1}{n}} - \sqrt{\frac{1}{n+1}} - \sqrt{\frac{1}{n} - \frac{1}{n+1}}$, then find the value of: $a_1 \cdot a_2 \cdot a_3 \cdot a_4 \cdot \ldots \cdot a_{99}$.

Answer:

32.

If $a_n = 1 + \sqrt{\frac{1}{n}} - \sqrt{\frac{1}{n+1}} - \sqrt{\frac{1}{n} - \frac{1}{n+1}}$, then find the value of: $a_1 \cdot a_2 \cdot a_3 \cdot a_4 \cdot \ldots \cdot a_{99}$.

Answer:

32.

If $a_n = 1 + \sqrt{\frac{1}{n}} - \sqrt{\frac{1}{n+1}} - \sqrt{\frac{1}{n} - \frac{1}{n+1}}$, then find the value of: $a_1 \cdot a_2 \cdot a_3 \cdot a_4 \cdot \ldots \cdot a_{99}$.

Answer:

32.

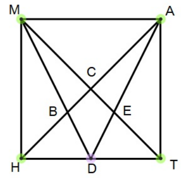
If $a_n = 1 + \sqrt{\frac{1}{n}} - \sqrt{\frac{1}{n+1}} - \sqrt{\frac{1}{n} - \frac{1}{n+1}}$, then find the value of: $a_1 \cdot a_2 \cdot a_3 \cdot a_4 \cdot \ldots \cdot a_{99}$.

Answer:

33.

$MATH$ is a unit square with point C the midpoint of $\overline{MT}$, and point D the midpoint of $\overline{HT}$.

Find the area of kite $BCED$.

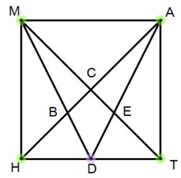


Answer:

33.

$MATH$ is a unit square with point C the midpoint of $\overline{MT}$, and point D the midpoint of $\overline{HT}$.

Find the area of kite $BCED$.

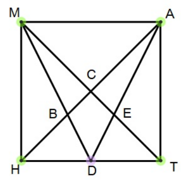


Answer:

33.

$MATH$ is a unit square with point C the midpoint of $\overline{MT}$, and point D the midpoint of $\overline{HT}$.

Find the area of kite $BCED$.

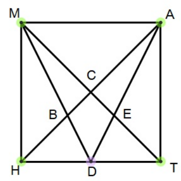


Answer:

33.

$MATH$ is a unit square with point C the midpoint of $\overline{MT}$, and point D the midpoint of $\overline{HT}$.

Find the area of kite $BCED$.



Answer:

34.

How many real roots are there for the equation: $\sin(x) = \log_{10} x$.

Answer:

34.

How many real roots are there for the equation: $\sin(x) = \log_{10} x$.

Answer:

34.

How many real roots are there for the equation: $\sin(x) = \log_{10} x$.

Answer:

34.

How many real roots are there for the equation: $\sin(x) = \log_{10} x$.

Answer:

35.

Beyonce, Kelly, and Michelle walk around a circular track. They take, respectively, 9, 12, and 14 minutes to walk each lap. If they start at the same time from the same place, how many minutes into the walk will they be at the same spot on the track again?

Answer:

35.

Beyonce, Kelly, and Michelle walk around a circular track. They take, respectively, 9, 12, and 14 minutes to walk each lap. If they start at the same time from the same place, how many minutes into the walk will they be at the same spot on the track again?

Answer:

35.

Beyonce, Kelly, and Michelle walk around a circular track. They take, respectively, 9, 12, and 14 minutes to walk each lap. If they start at the same time from the same place, how many minutes into the walk will they be at the same spot on the track again?

Answer:

35.

Beyonce, Kelly, and Michelle walk around a circular track. They take, respectively, 9, 12, and 14 minutes to walk each lap. If they start at the same time from the same place, how many minutes into the walk will they be at the same spot on the track again?

Answer: