End of Year Review
Tiffany Dickie

Question 1

Jennifer collected $24.75 in tips from her waitress job Friday night. She had 4 times as many dimes as nickels and the number of quarters were 10 less than 20 times the number of nickels. How many of each coin did she have?

Question 2

Jansen is travelling from Victoria to Melbourne at an average speed of 80 km per hour. An hour and a half later, his girlfriend Kyla leaves from the same place and also going to Melbourne but travelling at an average speed of 120 km per hour. At what distance and time does Kyla reach Jansen?

Question 3

Zair has 48 marbles in his pocket. He has 3 more blues than the yellow ones, and 4 times as many yellows as the red ones. How many of each colored marble is there?

Question 4

A forest has 523 maple, oak and birch trees. It has 7 more maple trees than oak trees, and twice as many birch trees as the oak trees. How many birch , oak and maple trees are in the forest?

Question 5

At a charity dinner, participants were asked to donate a $20, $50 or $100 bill to support the fundraiser. The organizers collected a total of $9800. There were 25 less $20 bills than $50 bills and there were 35 more $100 bills than $50's. How many of each bill did they have?

Question 6

What is the base of the triangle if its height is 8m and the area is 52 m^2?

Question 7

The perimeter of a rectangle is 84 m. The length is 4 more than the width. What are the width and length of the rectangle?

Question 8

A sack of gravel costs $4.75 less than a sack of cement. Last week John paid $15.50 for two sacks of each. How much will he pay if he needs 28 sacks of gravel and 20 sacks of cement to finish his project?

Question 9

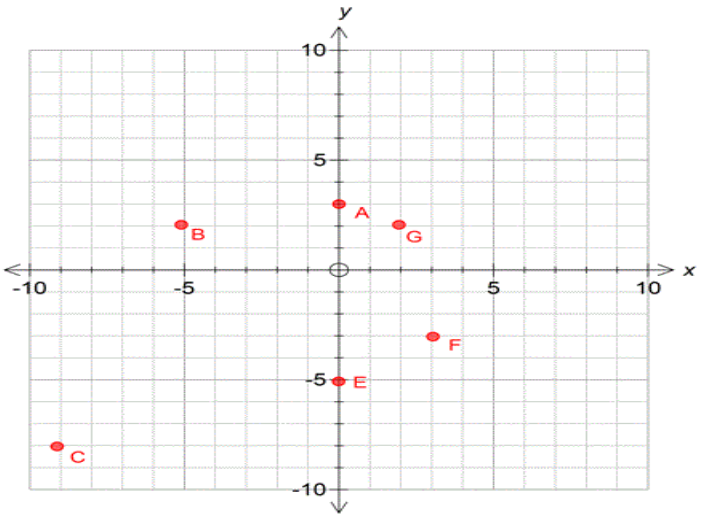
What is the average speed of a race car if it reaches the finish line of a 420 km long race in one and a half hours?

Question 10

Francesca left Los Angles at an average speed of 65 km per hour going towards Beverly Hills. How many hours will it take to reach her destination if the two places are 16.25 km apart?

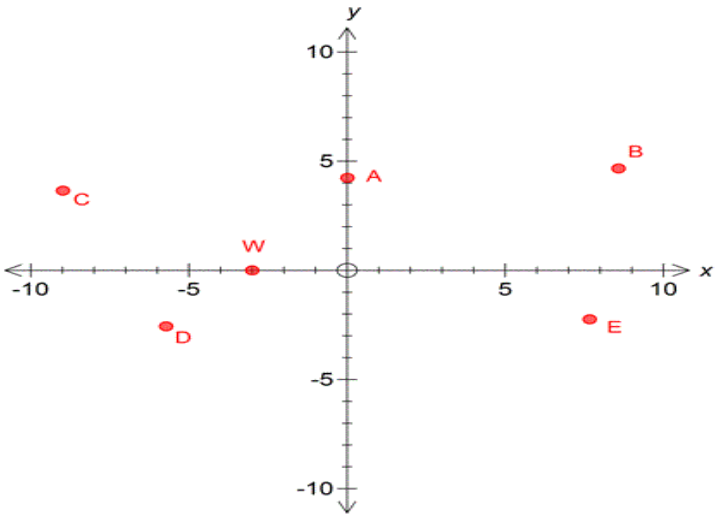
Question 11

Which of the following points in the Cartesian plane below has coordinates (2, 2)?



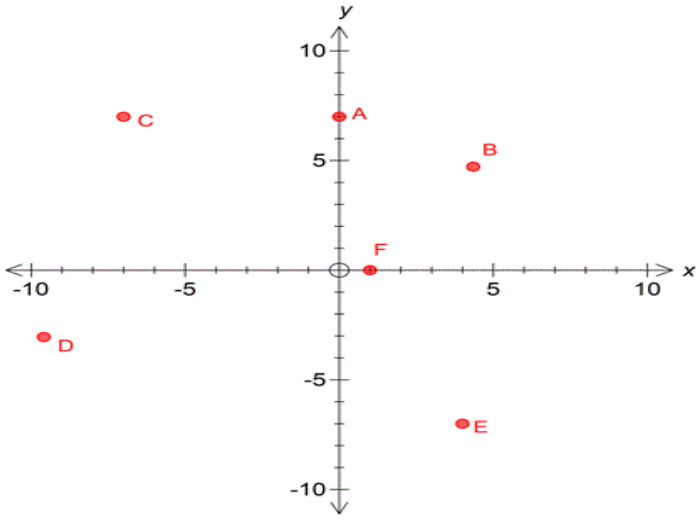
Question 12

Given the points in the Cartesian plane below, identify the point(s) that are on y-axis.



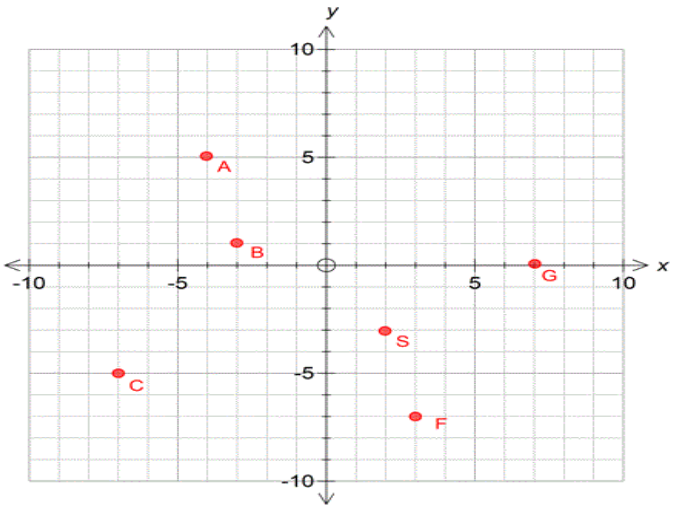
Question 13

Given the points in the Cartesian plane below, identify the point(s) that are on x-axis.



Question 14

Which of the following points in the Cartesian plane below has coordinates (2, -3)?



Question 15

Ivan chops wood after school to make spending money. He gets paid $16 per hour. Create a table of values that displays how much money he makes for the first 4 hours he works.

Question 16

When Roland goes bowling it costs $6 to rent shoes and $4 per game he bowls. Create a table of values to show the total cost for 4 games.

Question 17

Jenna goes apple picking in the Annapolis Valley. It costs $5 to enter the orchard and $2 for every bag of apples she picks. Create a table of values that describes the total costs for up to 3 bags of apples.

Question 18

At a fishing camp, there is a $50 entry fee plus $15 for every fish you catch and keep. Create a table of values displaying the total costs if the maximum number of fish you can keep is 4.

Question 19

Eldritch buys a vine for his fence. When he bought the vine, it was 30 inches long. Each week the vine grows 6 inches. Create a table of values that describes the total length of the vine after 3 weeks.

Question 20

Create a table of values to represent the equation $y = x - 11$.

Question 21

Hayley was given 23 golf balls at Christmas. Each week after Christmas, she finds 7 more golf balls when she walks the course at night with her parents. Create a table to show her total number of golf balls from week 5 through week 9 of walking the course.

Question 22

Joanna reads 8 books from the library every month. Create a table to show how many books in total she will have read from the third month to the seventh month this year.

Question 23

Helena has already earned 36 marks in her monthly assessment. For every homework assignment that she completes, she gets an additional 4 marks. Use a table to find out how many assignments she will have to complete to reach 80 marks.

Question 24

Mr. James has set himself the goal to walk 1500 m every day. He walked 550 m after breakfast. After dinner he begins walking at a speed of 47.5 m per minute. Use a table to find out how long he would have to walk after dinner to reach his goal.

Question 25

Wayne started his music collection with 10 songs. Each day he downloads 4 more songs. Create a graph to model the number of songs in his collection depending on the number of days. Let x be the number of days and let y be the number of songs.

Question 26

Carrie wants to learn to play golf. She has bought a used set of clubs for $85 and will pay $20 each week for lessons. What will her total cost be in 7 weeks if she takes a lesson every week? Use a graph to help you answer the question.

Question 27

Elizabeth is running 5 km each day over the summer. Create a graph that shows the relationship between the time in days and the total number of kilometres she has ran during the summer. Let x be the time in days and let y be the total number of kilometres.

Question 28

Angelina cycles 16 kilometres during each trip to work. Create a graph to model the total distance traveled depending on the number of trips. Use the graph to determine the total distance traveled after 6 trips.

Question 29

Mike is a website developer. He creates 9 websites each month. Make a graph to model the number of websites created depending on the number of months.

Let x be the number of months and let y be the number of websites.

Question 30

Ringo wants to take music lessons. He contacts 3 different teachers. John asks for $50 to register and an $8 hourly fee. Paul wants a $35 registration fee and an hourly fee of $10. George does not ask for a registration fee, but his hourly fee is $15. Which teacher would cost the least if the teacher is to be hired for 20 hours?

Question 31

Mathew is completing a mathematics quiz. For the first 8 questions, it takes him four minutes per question on average to get an answer. Given that there are a total of 10 questions and the time allowed is 50 minutes, draw a table describing the above situation. How many minutes does he have left for the last two questions?

Question 32

Before itunes, there was mytunes. To join mytunes, it cost $12. Each song cost $2 to add to your account. Micah spent $28 during his first year with a mytunes account. Using a graph, determine how many songs he bought during his first year.

Question 33

Peter has 178 Pokémon cards. He wants to keep 50 cards for himself and distribute the rest equally amongst his 16 friends. Draw a table and find out how many cards he can give to each friend.

Question 34

Joe has to choose from 3 places for his party. At the *Food Emporium*, there is a $30 group fee and then an additional $8 per person. *The Anvil* has a $50 group fee, but only charges $6 per person. *Paddy`s Pub* has no fee, but charges $11 per person. Use a graph to determine which company would cost the least if Joe is inviting 15 people.

Question 35

On average, 42 people pass through the main entrance of a passport building every hour. Use an equation to determine the total number of people that passed through the main entrance of this building in 5 hours.

Question 36

John borrowed $45,000 from his friend Chris to build a new barn. He will pay back Chris by giving him $1500 every month. Use an equation to determine how much he will still owe Chris after 18 months.

Question 37

Lauren's current savings account balance is $2500. She was given a raise at her job and resolves to start regularly depositing money into this account. She decides to deposit $250 every month into her savings account. Use an equation to determine how many months have passed from when Lauren received her raise if she has a total of $6,000 in her savings account.

Question 38

When Gina's mother returned from a trip to Europe, she brought back three collectable dolls for Gina. Since then, every year Gina buys two more dolls to add to her collection. Write an equation that describes her total number of dolls in relation to the number of years since her mother's trip to Europe.

Question 39

Manuel was given $235 for Christmas to go toward buying a phone. If he saves an additional $15 every week, write an equation that can be used to determine the total amount he has to spend on a phone in relation to the number of weeks after Christmas.

Question 40

Which person has the highest ratio of red gumballs to blue gumballs in their gumball machine?

Charlie has 30 red gumballs and 40 blue gumballs.

Alan has 75 red gumballs and 100 blue gumballs.

Jolie has 50 red gumballs and 90 blue gumballs.

John has 90 red gumballs and 111 blue gumballs.

Question 41

John has 7 books and 9 notebooks in his school bag. Write the ratio of books to notebooks as a decimal.

Question 42

Four classes counted their pencils and pens. Which teacher's class has the highest ratio of pencils to pens?

Mr. Mustard's class had 40 pencils and 40 pens.

Ms. Peacock's class has 70 pencils and 90 pens.

Ms. White's class has 60 pencils and 65 pens.

Mr. Plum's class has 87 pencils and 105 pens.

Question 43

Which hockey team's training camp had the highest ratio of forwards to defencemen?

Toronto had 45 forwards and 25 defencemen.

Chicago had 36 forwards and 21 defencemen.

Detroit had 28 forwards and 16 defencemen.

Montreal had 32 forwards and 12 defencemen.

Question 44

Four friends live in sunny California. Over the summer months they kept track of what they did during their leisure time. Which person had the highest ratio of time spent at the beach to time spent at the park?

Charlie had 20 hours of beach time and 30 hours of park time.

Alan had 18 hours of beach time and 12 hours of park time.

Jake had 15 hours of beach time and 6 hours of park time.

Berta had 128 hours of beach time and 64 hours of park time.

Question 45

Given that the two ratios below are equivalent, determine the value of x.

$3:2 \ \ and \ \ x:14$

Question 46

Stephen delivered 20 candygrams in his homeroom in 12 minutes. How many candygrams could he deliver in 6 minutes if this situation is proportional?

Question 47

It takes 5 cups of sugar to make the icing for 4 cakes. In a proportional situation, how many cups of sugar do we need to make the icing for 12 cakes?

Question 48

Given that the table of values below represents an inversely proportional situation, find the rule.

x	y
1	18
2	9
3	6
4	4.5

Question 49

The area of a rectangle is 86cm². If x represents the width and y represents the length, determine the rule to calculate the width.

Question 50

Given that the table of values below represents an inversely proportional situation, find the rule.

x	y
1	26
2	13
3	8.66
4	6.5

Question 51

Given that the table of values below represents an inversely proportional situation, find the rule.

x	y
1	60
2	30
3	20
4	15

Question 52

The area of a rectangle is 97cm². If x represents the width and y represents the length, determine the rule to calculate the length.

Question 53

Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{x}{0.75} = \frac{0.54}{0.45}$$

Question 54

Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{x}{4} = \frac{7}{2}$$

Question 55

Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{25}{35} = \frac{x}{7}$$

Question 56

Determine the value of x in the following proportion by using cross-multiplication.

$$\frac{x}{0.45} = \frac{0.2}{0.3}$$

Question 57

Jean can choose from five types of tea boxes. Box A contains 8 tea bags and costs $1.12. Box B contains 18 tea bags and costs $1.98. Box C contains 12 tea bags and costs $1.92. Box D contains 15 tea bags and costs $1.95. Box E contains 12 tea bags and costs $2.28. Which of the five boxes is the best buy?

Question 58

Kimberley can buy baskets of apples at the Farmer's Market. Basket A contains 5 apples and costs $2.50. Basket B contains 9 apples and costs $6.12. Basket C contains 10 apples and costs $3.50. Basket D contains 7 apples and costs $3.15. Basket E contains 6 apples and costs $3.42. Which of the five baskets is the best buy for Kimberley?

Question 59

Guy can buy flour in five different packages. Package A contains 3 bags of flour and costs $5.34. Package B contains 5 bags of flour and costs $7.80. Package C contains 7 bags of flour and costs $10.15. Package D contains 9 bags of flour and costs $10.89. Package E contains 12 bags of flour and costs $21.36. Which of the five packages is the best buy for Guy?

Question 60

The two tables given below represent the payment options for purchasing a motorcycle. Don has to choose between the two options because he cannot afford to pay for the bike all at once. He will have to pay for the bike in six months. How much is the down payment in the option that will be less expensive overall?

Option 1

Number of Months	Total Payment
0	$1000
1	$1500
2	$2000
3	$2500
4	$3000
5	$3500
6	$4000

Option 2

Number of Months	Total Payment
0	$0
1	$750
2	$1500
3	$2250
4	$3000
5	$3750
6	$4500

Question 61

At an outdoor fruit market, Nick can buy five different types of bags of oranges. Bag A contains 9 oranges and costs $4.95. Bag B contains 6 oranges and costs $2.94. Bag C contains 10 oranges and costs $7.80. Bag D contains 8 oranges and costs $5.04. Bag E contains 7 oranges and costs $4.76. Which of the five bags is the best buy?

Question 62

The following situation is directly proportional.

Judy had to complete errands in the city. The first trip, she parked in a parking garge and paid $5.25 for three hours. The next trip, she only parked for one hour. Assuming the relationship is directly proportional, how much will she pay for parking during the second trip?

Question 63

The following situation is directly proportional.

Jennifer buys five notebooks for $18. How much will she pay for two notebooks?

Question 64

Hannah plans to show the distance between Calgary and Banff on a map that will be projected onto a large screen for an audience to see. The actual distance between the two cities is 128 km. The projection will have a scale of 1 : 200,000. How far apart, in centimeters, will the two cities appear on the screen?

Question 65

Paula is creating a supersized map to display in the boardroom of the company headquarters. The actual distance separating Banff and Kelowna is 480 km. Using a 1 : 50,000 scale, how far apart, in centimeters, are the two cities on the map?

Question 66

Edith needs to modify her recipe for the grapefruit juice to use at a baby shower. The original recipe, shown below, will only make enough for 6 people. Modify this recipe so that it serves 18 people.

- 1500 mL of water
- 70 g of sugar
- 10 grapefruit

Question 67

Convert the following fraction to a percentage.

$$\frac{5}{8}$$

Question 68

Convert the following decimal to a fraction in simplest (reduced) terms.

$$0.15$$

Question 69

Convert the following fraction to a decimal.

$$\frac{19}{25}$$

Question 70

Convert the following decimal to a fraction in simplest (reduced) terms.

$$0.56$$

Question 71

Cassidy plans to buy an electric bike that is currently available for 38% off its regular price of $998. Cassidy will make the purchase in Alberta, where the sales tax is 5%.

Determine the **total price** of the electric bike after the sales tax has been added.

Question 72

Danni plans to buy a skateboard that is currently available for 20% off its regular price of $230. Danni will make the purchase in British Columbia, where the sales tax is 12%.

Determine the **total price** of the skateboard after the sales tax has been added.

Question 73

A laser printer is on sale for 30% off at a store in Ontario, where the sales tax is 13%. The regular price of the laser printer is $260.

Determine the **total price** of the laser printer after the sales tax has been added.

Question 74

Tenisha is furnishing her living room and plans to purchase a new futon. The model she has picked out has a list price of $860. Tenisha waits a week until she can purchase it on sale for 40% off.

Determine the **amount of the discount,** in dollars, that Tenisha is receiving on the futon.

Question 75

Taryn plans to buy a box set of books that is currently available for 12% off its regular price of $98. Taryn will make the purchase in Newfoundland, where the sales tax is 13%.

Determine the **total price** of the box set after the sales tax has been added.

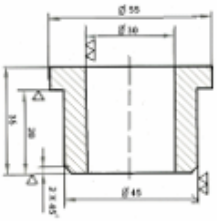
Question 76

Mathias studies chemistry for 6 hours each week. He realizes that his chemistry-biology study ratio is 3:5.

Determine the **number of hours** Mathias studies biology each week.

Question 77

The blueprint of an office building shows the scale to be:



scale: 45 mm : 1 m

Determine the **scale factor** of the blueprint.

Question 78

Brisco's Café serves 220 customers in one day with 12 baristas.

Determine the **ratio** of customers to baristas.

Question 79

Vincent is mixing fruit punch and adds 2 L of pineapple juice to a bowl containing 6000 mL of mango juice.

Determine the **ratio** of pineapple juice to mango juice.

Question 80

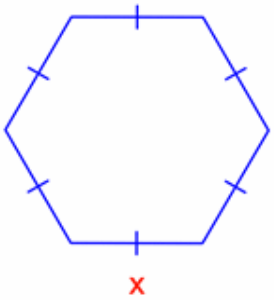
The scale drawing of a monument shows the scale to be:

scale: 0.25 mm : 1 cm

Determine the **scale factor** of the drawing.

Question 81

The **regular hexagon** below has a perimeter of 36 m.
Determine the length (x) of one side of the hexagon.



Question 82

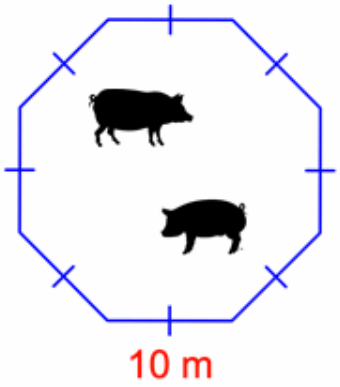
Miss Ward is hanging a border around the top of her classroom walls. The classroom is in the shape of a **regular octagon** and each wall measures 4 m in length.

How long must Miss Ward's border be in order to go around the classroom exactly once?

Question 83

On Adrian's farm there is a large pen where the pigs are kept as shown below.

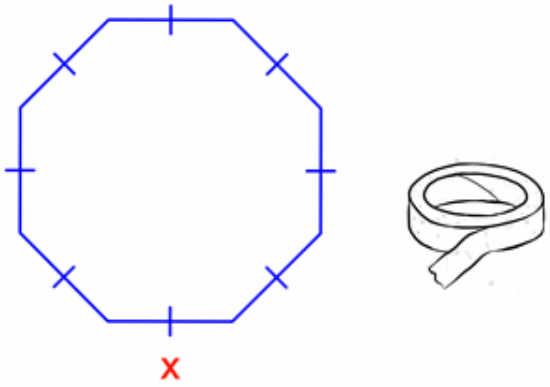
What length of fencing is required to enclose the pen?



Question 84

Mr. Carter is setting up a large game in the gym and uses tape to create boundary lines on the floor as shown below.

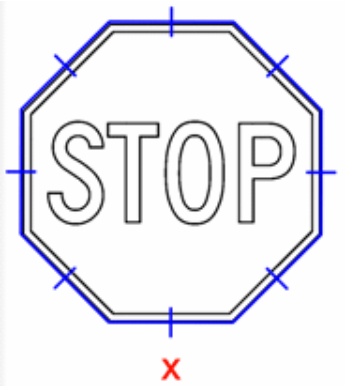
If Mr. Carter used a total of 48 m of tape, what is the length (x) of one side of the game area?



Question 85

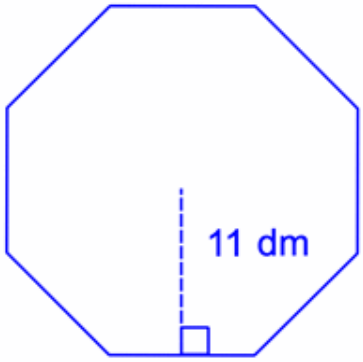
A crossing guard uses a hand-held stop sign to direct traffic while helping students cross the street. The stop sign has a white border with a total length of 96 cm as shown below.

What is the length (x) of one of the sides of the stop sign?



Question 86

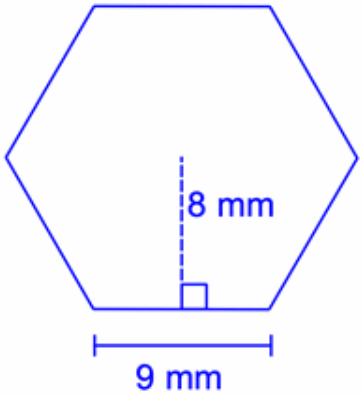
Determine the **perimeter of the regular octagon** below.



Area = 396 dm^2

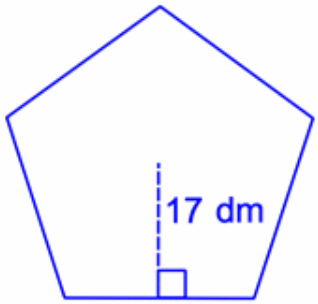
Question 87

Determine the **area of the regular hexagon** below.



Question 88

Determine the **perimeter of the regular pentagon** below.



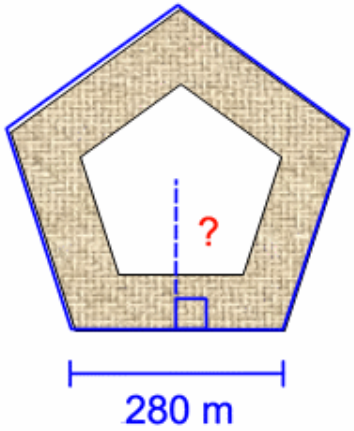
Area = 1062.5 dm^2

Question 89

The Pentagon building in Washington, D.C. is built in the shape of a **regular pentagon** with each side measuring 280 m, as shown in the diagram below.

Including the interior courtyard, the main floor of the Pentagon takes up 134 400 m^2. What is the **measure of the apothem**?

Area = 134 400 m^2

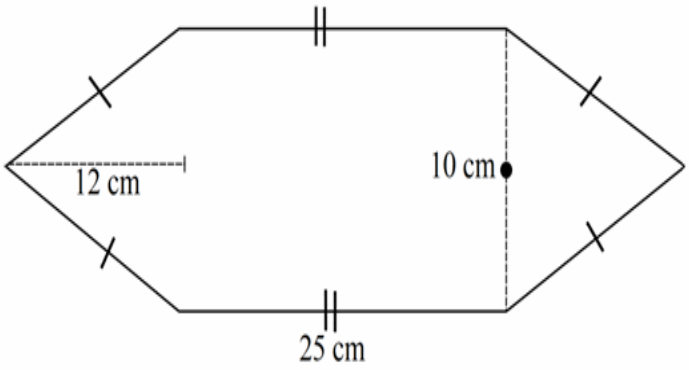


Question 90

Determine the **area of a regular octagon** that has a perimeter of 19 cm and an apothem of 3 cm.

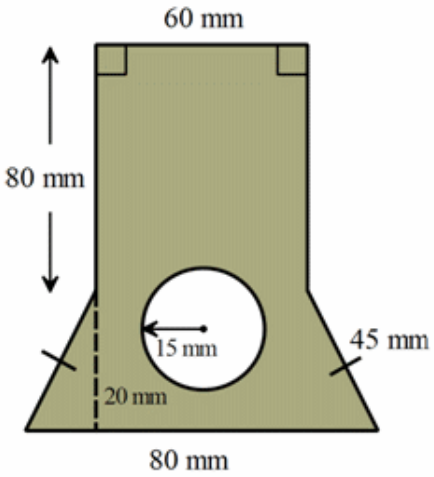
Question 91

Calculate the perimeter of the following composite shape.



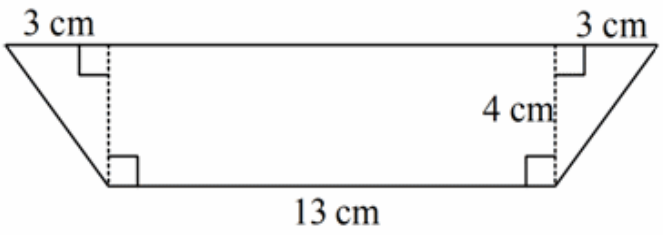
Question 92

A metallic part of a child's toy needs to be covered with a rust-proofing compound to prevent corrosion. Find the area (the shaded region) to be rust-proofed, correct to one decimal place.



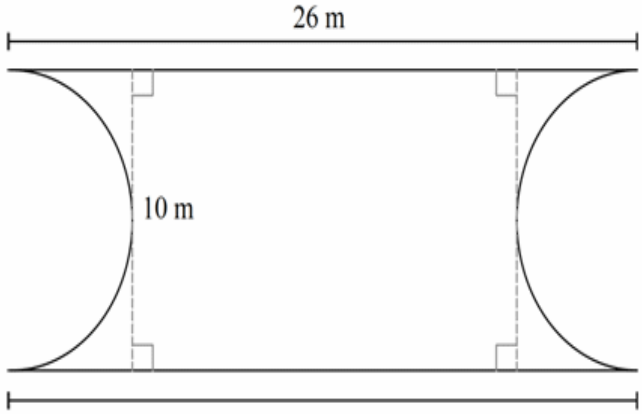
Question 93

Calculate the area of the following composite shape.



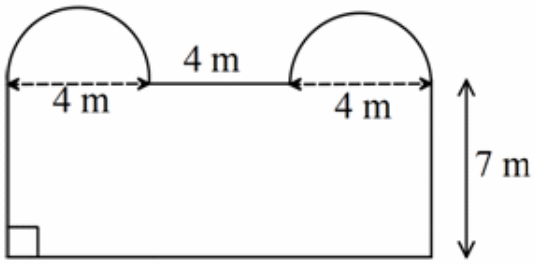
Question 94

Calculate the area of the following composite shape where the curved sections are semi-circles. Give your answer correct to two decimal places.



Question 95

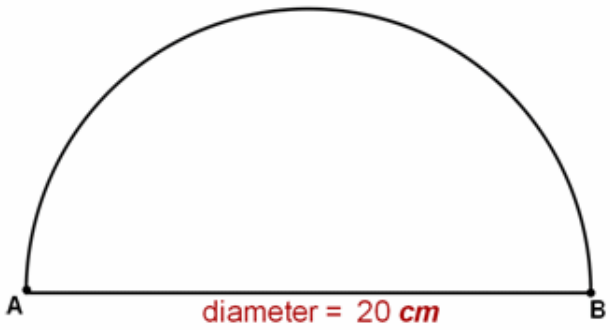
Calculate the amount of wallpaper needed to cover the wall shown in the plan below, given that the curved sections are semi-circles. Give your answer correct to two decimal places.



Question 96

Find the ***perimeter*** of the semi-circle below, correct to one decimal place.

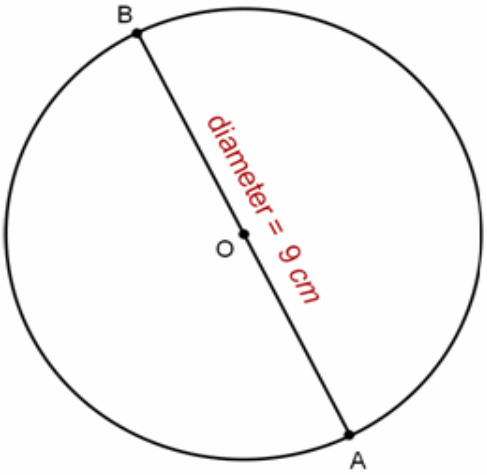
(Note: use $\pi = 3.14$)



Question 97

Find the circumference of the given circle.

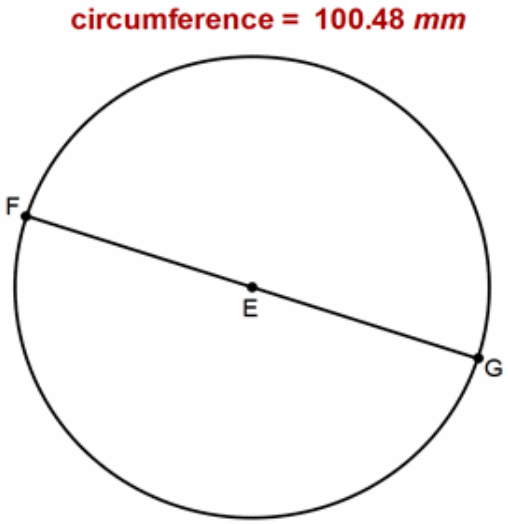
(Note: use $\pi = 3.14$)



Question 98

Find the ***diameter*** of the circle shown below, given that the circumference is 100.48 mm.

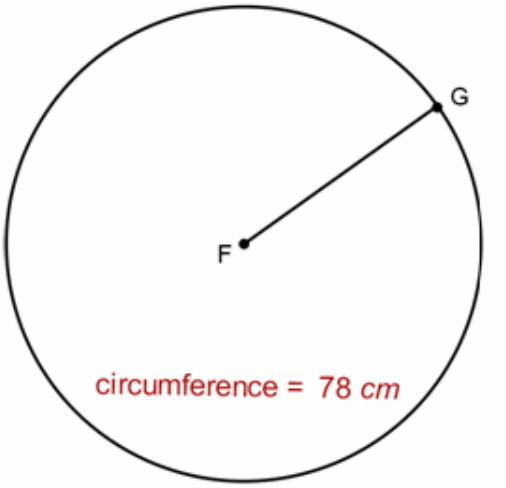
(Note: use $\pi = 3.14$)



Question 99

Find the radius of the following circle, correct to two decimal places.

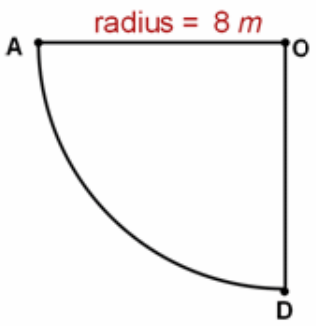
(Note: use $\pi = 3.14$)



Question 100

Find the perimeter of the following playing area which forms the shape of a quarter circle.

(Note: use $\pi = 3.14$)



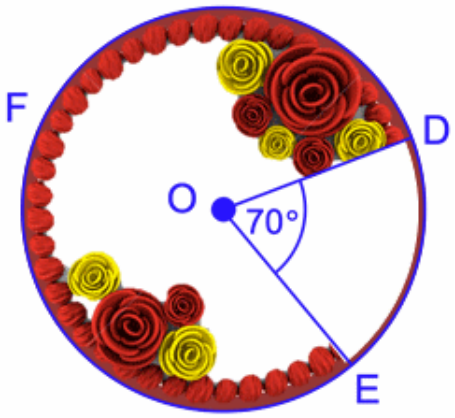
Question 101

Vivian is passing out slices of birthday cake at a party. She cuts directly to the centre and removes one slice, as shown in the diagram below.

The arc of the remaining cake ($m\widehat{EFD}$) measures 42 cm.

Determine the measurement of $\widehat{DE}$, the arc of the slice of cake that was removed.

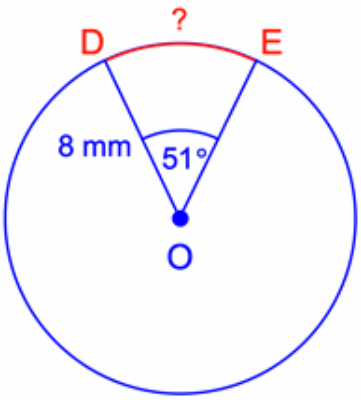
Round the answer to the **nearest hundredth**.



Question 102

Determine $m\widehat{DE}$ for the circle below.

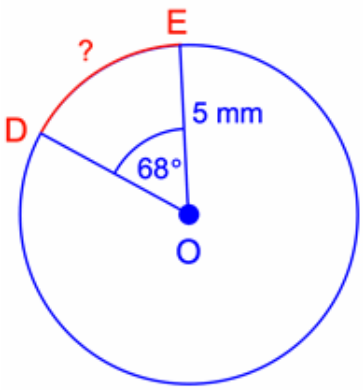
If necessary, round the answer to the **nearest hundredth**.



Question 103

Determine $m\widehat{DE}$ for the circle below.

If necessary, round the answer to the **nearest hundredth**.



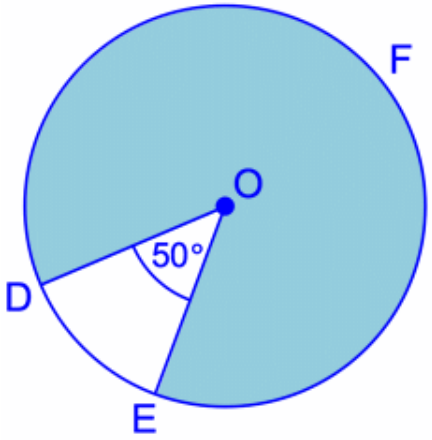
Question 104

Marcel is cutting a circular piece of paper to make a windmill. He cuts to the centre of the paper and removes a piece, as shown in the diagram below.

The arc of the remaining paper ($m\widehat{EFD}$) measures 20 cm.

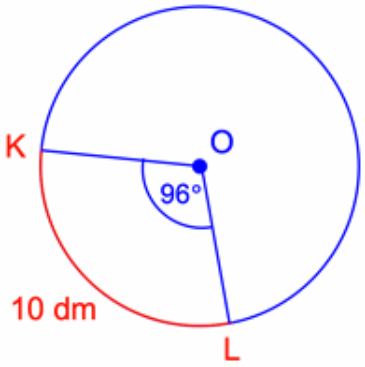
Determine the measurement of $\widehat{DE}$, the arc of the piece of paper that was removed.

Round the answer to the **nearest hundredth**.



Question 105

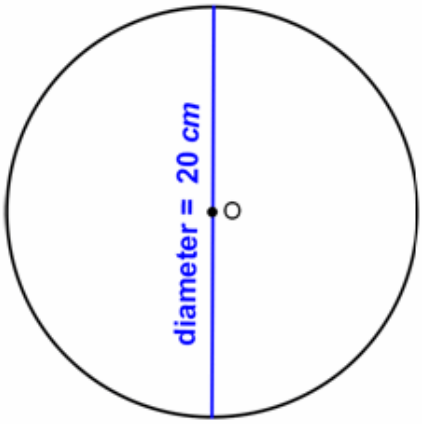
Determine the **circumference** of the circle below given that $m\widehat{KL} = 10$ dm.



Question 106

Calculate the area of the circle given below.

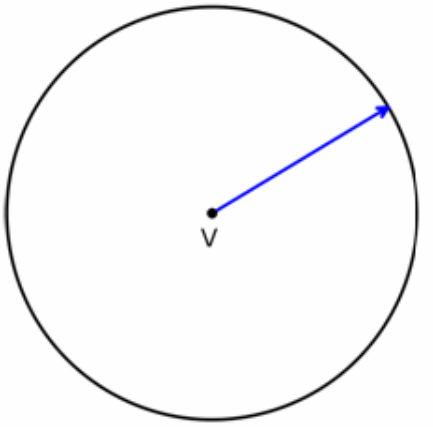
(Use π = 3.14)



Question 107

Calculate the ***radius*** of the circle below, correct to one decimal place, given that its area is 30.5 cm^2.

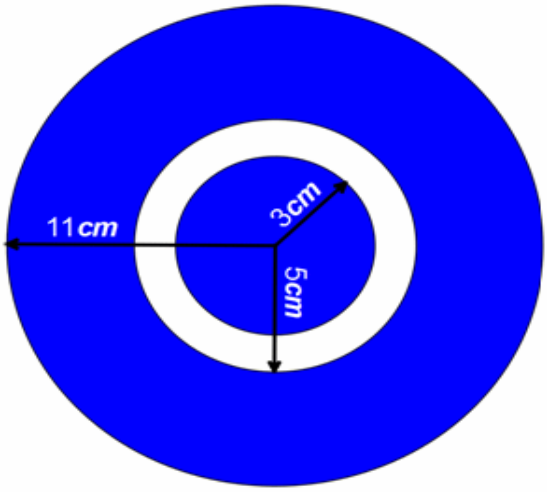
(Use $\pi = 3.14$)



Question 108

Calculate the area of the shaded (blue) region in the diagram below.

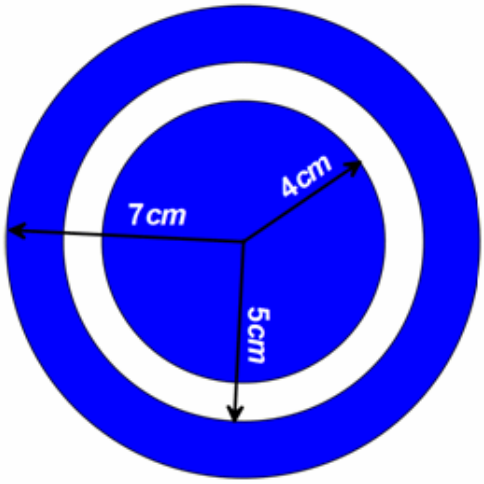
(Use $\pi = 3.14$)



Question 109

Calculate the total area of the shaded (blue) region in the diagram below.

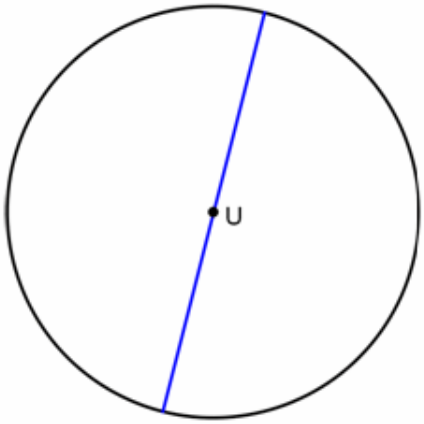
(Use $\pi = 3.14$)



Question 110

Calculate the ***diameter*** of the circle below, correct to two decimal places, given that its area is 90 m^2.

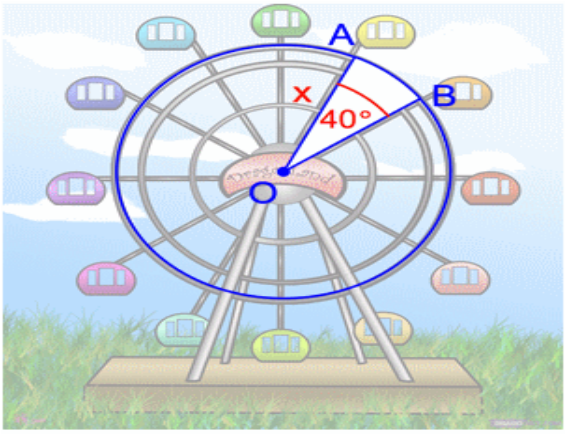
(Use $\pi = 3.14$)



Question 111

At a carnival, a large Ferris wheel spins the riders around at the end of each spoke in a gondola. The circular area between two of the spokes is 2318.6 m^2 and makes an angle of 40 degrees, as shown in the diagram below.

Determine the length (x) of one of the spokes on the wheel. Round the final answer to the nearest tenth.

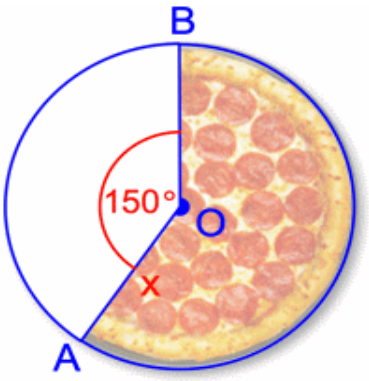


$A_{AOB} = 2318.6\ m^2$

Question 112

Jared ordered an extra large pizza to share with his friends. He used a pizza wheel to slice into the centre and remove several pieces, as shown in the diagram below.

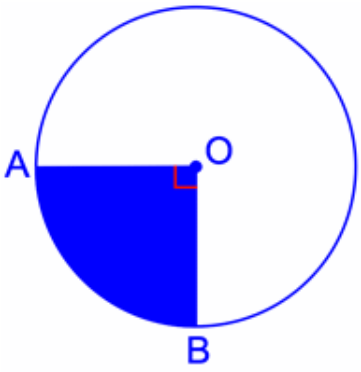
Determine the length (x) of the cut Jared made from the edge of the pizza to the centre, given that Jared removed a circular area of 772.9 cm^2 of pizza. Round the final answer to the nearest tenth.



$A_{AOB} = 772.9\ cm^2$

Question 113

Calculate the **area of the circle** shown below. Round the answer to the nearest tenth.

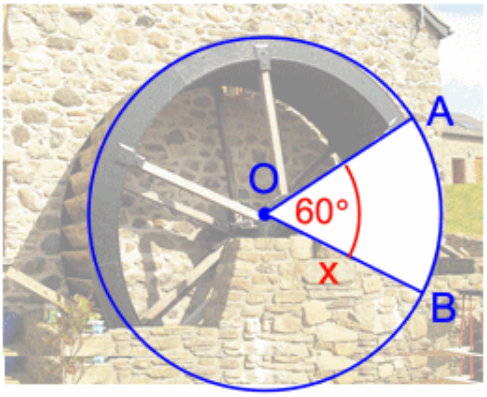


$A_{AOB} = 14.9\ dm^2$

Question 114

Charlestown is an old mining town and keeps one of its original watermills on display in the river, as shown in the diagram below. The circular area between two of the spokes in the watermill is $5.36\ m^2$.

Determine the length (x) of one of the spokes on the watermill. Round the final answer to the nearest tenth.

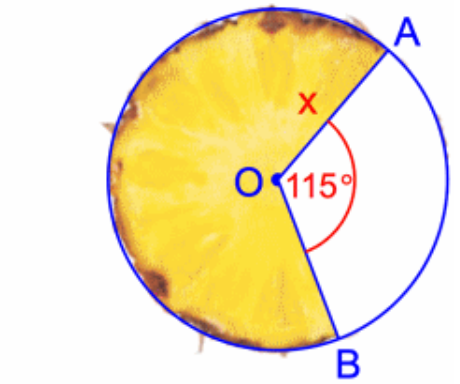


$A_{AOB} = 5.36\ m^2$

Question 115

Tyson is slicing pineapple to use in an upside down cake. He slices into the centre of a large piece and removes a circular area of 14.5 cm^2 of pineapple, as shown in the diagram below.

Determine the length (x) of the cut Tyson made from the centre of the pineapple to the edge. Round the final answer to the nearest tenth.

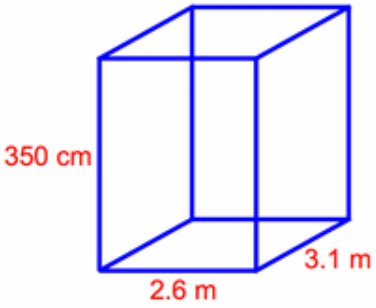


$A_{AOB} = 14.5\ cm^2$

Question 116

An art museum is preparing to put a valuable sculpture on display. A glass case will be built so that the sculpture will be fully protected, as shown in the diagram below.

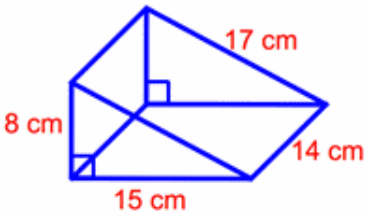
Determine the **total amount of glass** needed to make up the display case. Express your answer in **square metres**.



Question 117

Julianne has a fireplace but she does not like to have a lot of smoke in her home. She often purchases fire log wedges to burn instead of wood, to reduce the amount of smoke. The diagram below shows one of the fire log wedges. Julianne wonders what the surface area of this log wedge is.

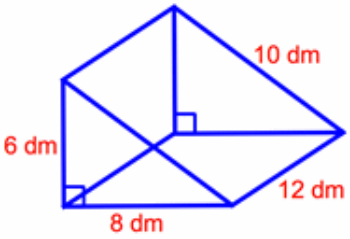
Determine the **total surface area** of the fire log wedge. Express your answer in **square centimetres**.



Question 118

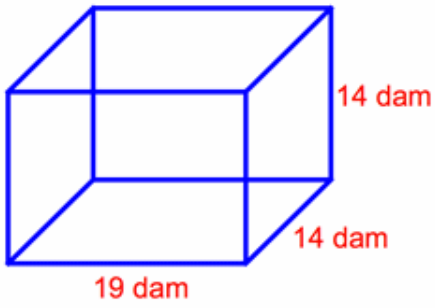
A gymnastics club is having the outer fabric replaced on all of their mats. They want to determine how much fabric will be needed to cover the mats. The diagram below shows a large wedge mat that needs to be redone.

Determine the **total amount of fabric** necessary to cover the wedge mat. Express your answer in **square decimetres**.



Question 119

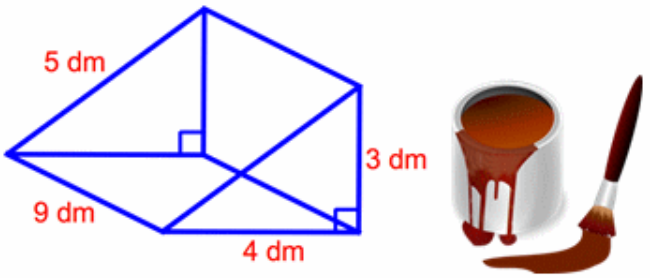
Calculate the **total surface area** of the rectangular prism shown below.



Question 120

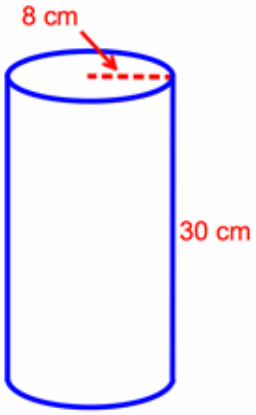
Rochelle has a footstool that is made out of solid wood and that can be flipped to stand on any side. She decides to stain the entire exterior of the footstool, as shown in the diagram below.

Determine the **total surface area** Rochelle will need to cover with stain. Express your answer in **square decimetres**.



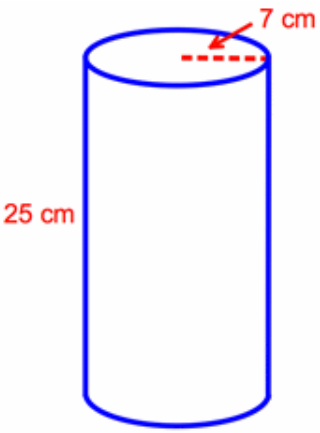
Question 121

Calculate the **surface area** of the cylinder shown in the diagram below and round the **result to the nearest tenth**.



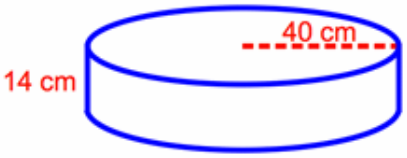
Question 122

Calculate the **surface area** of the cylinder shown in the diagram below and round the **result to the nearest tenth**.



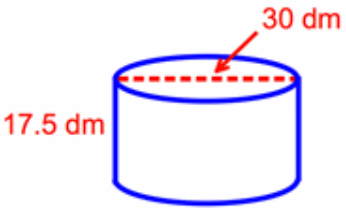
Question 123

Calculate the **surface area** of the cylinder shown in the diagram below and round the **result to the nearest tenth**.



Question 124

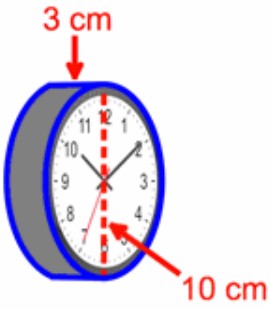
Calculate the **surface area** of the cylinder shown in the diagram below and round the **result to the nearest tenth**.



Question 125

Emmanuel just bought a new clock with a magnetic back so that he can stick it on his fridge. The front of the clock has a closed face, as shown in the diagram below.

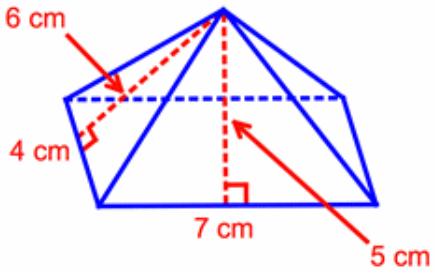
Determine the **total surface area** of the clock and round the **result to the nearest tenth**.



Question 126

Ms. Julian is teaching a science lesson on refracting light and wants to show her students an example. She decides to shine a light through a solid glass rectangle-based pyramid, as shown in the diagram below.

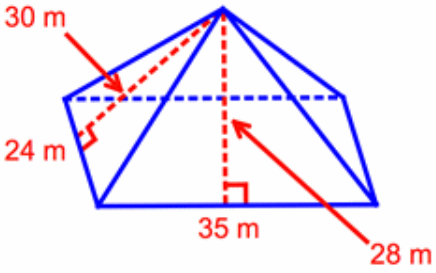
Determine the **total surface area** (including the base) of Ms. Julian's glass pyramid.



Question 127

A campground has recently built a large wooden pavilion over their picnic table area. The roof is in the shape of a rectangle-based pyramid.

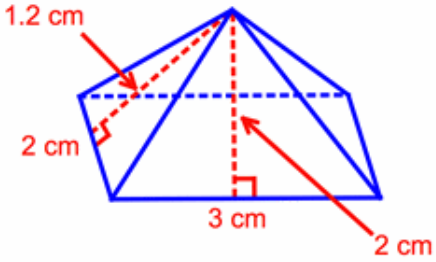
Determine the **total surface area** (including the base) of this pavilion roof, as shown in the diagram below.

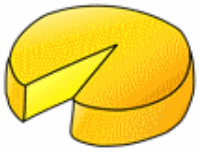


Question 128

Brielle is setting out food for a party she is hosting and has sliced cheese into small rectangular pyramids, as shown in the diagram below.

Determine the **total surface area** (including the base) of one of the pieces of cheese.

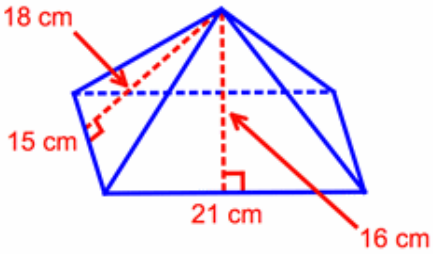




Question 129

TJ works moulding chocolate at a confectionary. He recently moulded a large piece of chocolate in the form of a rectangle-based pyramid, as shown in the diagram below.

Determine the **total surface area** (including the base) of this piece of chocolate.

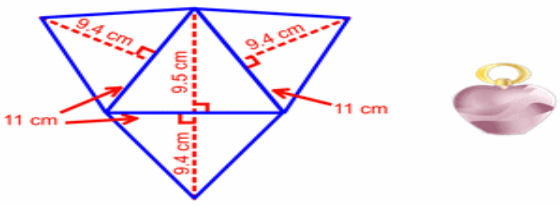


Question 130

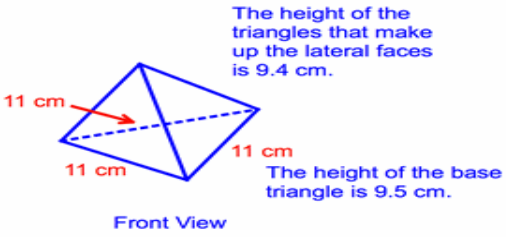
As part of a class project, Deirdre must create new packaging for a bottle of perfume. She has cut out a design from a single piece of cardboard, as shown in the net view below.

When it is assembled, the box will be in the form of a triangle-based pyramid, as shown in the front view.

Determine the **total surface area** of the exterior of the packaging.



Net View



Front View

Question 131

Which of the following four events **do not** have a theoretical probability? (There may be more than one.)

Event A: Your laptop will malfunction this year.

Event B: Jake will order a pizza with mushrooms as a topping.

Event C: Randomly selecting a blue candy from a jar containing 3 red, 5 yellow and 4 blue candies.

Event D: There will be no accidents on *Highway 20* tonight.

Question 132

During a game, two 6-sided dice are rolled together and the numbers shown on top are added.

Which of the following are possible outcomes? (There may be more than one.)

Outcome A: Getting a sum of 12.

Outcome B: Getting a sum of 2.

Outcome C: Getting a sum of 14.

Outcome D: Getting a sum of 10.

Question 133

A 6-sided die was rolled 30 times and the results were recorded in the tally table below.

Based on these results, calculate the **difference between the theoretical and the experimental probability** of getting **number 6** on the next roll.

Number Rolled	Tally
1	𝍸 ||||
2	|||
3	𝍸 ||
4	||
5	𝍸
6	||||

Question 134

A jar contains 3 red, 2 blue and 4 green candies. A candy is randomly picked from the jar and its colour is noted. The candy is then put back in the jar. The experiment is repeated 15 times and the results are recorded in the tally table as shown below.

Calculate both the ***theoretical*** and the ***experimental*** probability of picking a ***green*** candy from the jar.

Candy Colour	Tally
Red	𝍸
Blue	𝍸
Green	𝍸 |

Question 135

In an experiment, two 6-sided dice were rolled together and the resulting numbers were added. All possible outcomes of the experiment are shown in **Table A** below. The experiment was repeated 30 times and the results were recorded in **Table B** (a tally table) as shown below.

Calculate both the ***theoretical*** and the ***experimental*** probability of getting a sum of ***10*** using fractions.

Table A

		6-sided die					
		1	***2***	***3***	***4***	***5***	***6***
6-sided die	***1***	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	10
	5	6	7	8	9	10	11
	6	7	8	9	10	11	12

Table B

Sum	Tally
2	|
3	𝍸
4	||
5	||
6	𝍸
7	𝍸 𝍸
8	𝍸 |||
9	𝍸
10	𝍸 |||
11	||
12	|

Question 136

Gabriel, Rebecca and Burt are running in a race. Use a tree diagram to determine all possible placements of the three students at the end of the race.

Question 137

If a coin is tossed two times, how many of the possible outcomes have exactly two tails?

Question 138

Sarah is trying to decide what to wear to school today. She could either wear her T-shirt, or camisole and with this she could either wear her jeans, her track pants or her leggings. Use a tree diagram to show all of the outfits available for Sarah to choose from.

Question 139

On her University application, Marie must name 3 Institutes, in preferential order, that she would like to attend. There are 4 universities in her town, one of which is Jaimeson University that her mom attended. In how many of the possible combinations available to Marie is Jaimeson University included? Use a tree diagram to find the solution.

Question 140

Three competing schools are playing in a round robin Badminton tournament. By using a tree diagram, determine the possible placements of these three schools at the end of the tournament.

Question 141

A car dealership has 4 trucks and 8 cars for sale. The sales staff get a larger commission for selling a truck. If the two types of vehicles are equally likely to sell, what is the probability that the next two sales are trucks?

Question 142

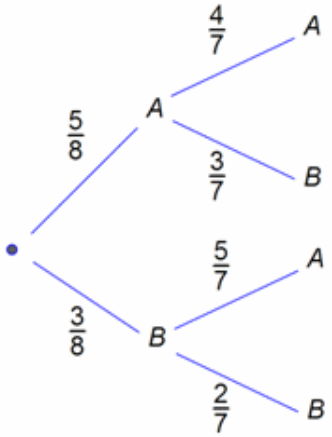
Mr. Johnson needs to select two students to demonstrate a physics experiment. There are 8 girls and 10 boys in his class. If he chooses each student one at a time, what is the probability that both the students are boys?

Question 143

There are two families of ducks and four families of swans on a lake. Tamaryn found two abandoned eggs on either side of the lake and took them home to incubate them so that they might hatch. What is the probability that they are both swans?

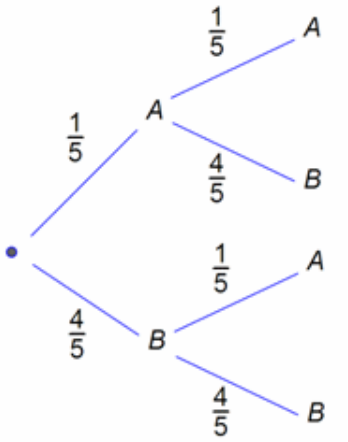
Question 144

Given the tree diagram below, find P_{BA} .



Question 145

Given the tree diagram below, find P_{BB} .



Question 146

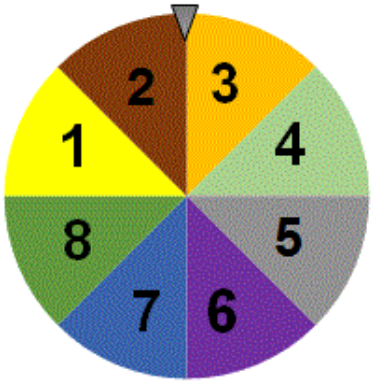
If an event is described as picking a face card of diamonds from a standard deck of cards, identify the complement of the event.

Question 147

If an event is described as picking a card from 2 to 10 from a standard deck of cards, identify the complement of the event.

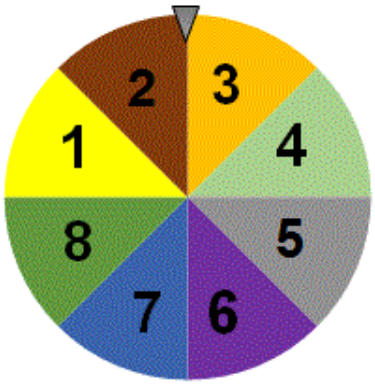
Question 148

Determine the complement of landing on a number less than 5 using the following spinner:



Question 149

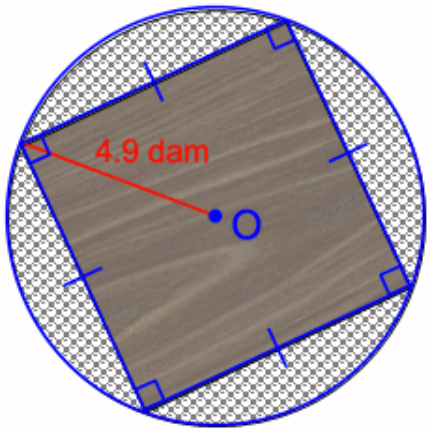
Determine the complement of landing on a number greater than 4 using the following spinner:



Question 150

To give their fans a better concert experience, a band has built their stage (the square) directly in the middle of the dome where they will be performing. The diagram below shows the floor plan for the concert.

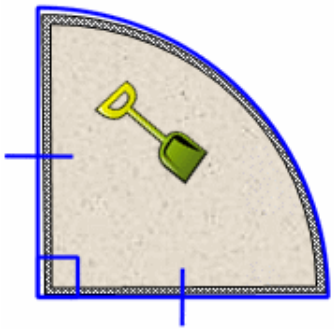
Determine the area available for the spectators to fill. Round the answer to the nearest tenth.



Question 151

Cory has a sandbox in the corner of his yard and wants to enclose it with a thin wooden wall, as shown in the diagram below. The area of the sandbox is $5.3\ m^2$.

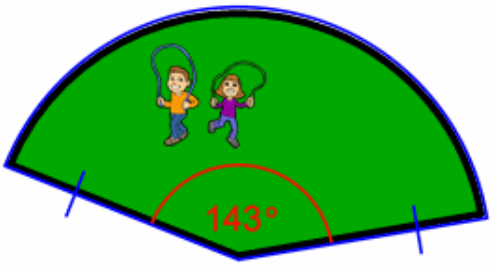
Determine the total length of the wood Cory will need to build the wall. Round the answer to the nearest tenth.



Question 152

At *Regent Elementary School*, different parts of the playground are fenced off for junior and senior grades. The junior section has an area of 85 m^2, as shown in the diagram below.

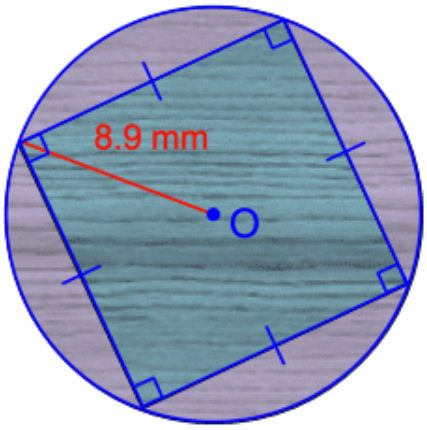
Determine the total length of the fence that surrounds the junior section. Round the answer to the nearest tenth.



Question 153

At the market, Hilary bought a new ring that is made from hand painted wood. The top of the ring is shown in the diagram below.

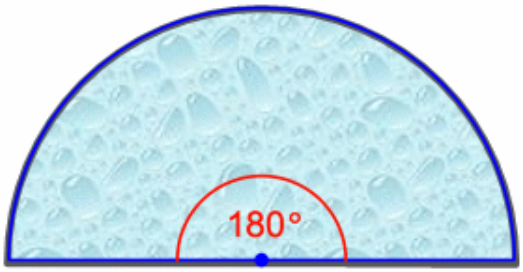
Determine the area of the wood that is painted purple. Round the answer to the nearest tenth.



Question 154

Mallory has a hot tub that sits against her fence and takes up 179 dm^2 of her backyard. To help the lid fit onto the tub better, she wants to add a strip of foam around the top, as shown in the diagram below.

Determine the total length of the foam that Mallory will need to go around the top of the hot tub exactly once. Round the answer to the nearest tenth.



Question 155

Write the following *improper fraction* as a **reduced mixed number**.

$$\frac{27}{4} = ?$$

Question 156

Write the following *improper fraction* as a **reduced mixed number**.

$$\frac{16}{3} = ?$$

Question 157

Calculate the following multiplication and reduce the result.

$$\frac{4}{5} \times \frac{5}{12} = ?$$

Question 158

Calculate the following multiplication and reduce the result.

$\frac{2}{7} \times \frac{7}{12} = ?$

Question 159

Calculate the following multiplication and reduce the result.

$\frac{14}{3} \times \frac{3}{28} = ?$

Question 160

Calculate the following division and reduce the result.

$\frac{4}{5} \div \frac{8}{9} = ?$

Question 161

Calculate the following division and reduce the result.

$\frac{3}{5} \div \frac{4}{5} = ?$

Question 162

Calculate the following division and reduce the result.

$\frac{3}{14} \div \frac{5}{7} = ?$

Question 163

Calculate the following division and reduce the result.

$\frac{8}{11} \div 4 = ?$

Question 164

Calculate $\frac{1}{6} + \frac{3}{4}$ and simplify your answer if necessary.

Question 165

Calculate $\frac{2}{7} + \frac{1}{9}$ and simplify your answer if necessary.

Question 166

Calculate $\frac{1}{4} + \frac{2}{3}$ and simplify your answer if necessary.

Question 167

Perform the following operation on these monomials.

$x^2y - 5x^2y$

Question 168

Perform the following operations on these monomials.

$16x^2y + 13xy^2 - 14x^2y + 17xy^2 - 19xy^2 + 4x^2y$

Question 169

Perform the following operations on these monomials.

$-3x^2 - x^2 + 11x^2$

Question 170

Perform the following operations on these monomials.

$-13x^2 - 23x^2 + 36x^2$

Question 171

Perform the following operations on these monomials.

$2x^2y - 3x^2y - 2x^2y + 3x^2y$

Question 172

Perform the following multiplication.

$(18xy)(-y)$

Question 173

Perform the following multiplication.

(90xy)(30xy)

Question 174

Perform the following multiplication.

(−8xy)(−5x)

Question 175

Perform the following multiplication.

$(x^4y^{15})(x^3y^{15})$

Question 176

Perform the following multiplication.

$(-30x)(-6x^4)$

Question 177

Perform the following multiplication.

$(12x^7y^4z^6)(-12y^2)$

Question 178

Perform the following multiplication.

$(-34x)(-3x^7)$

Question 179

Perform the following multiplication.

$(x^{14}y^{5}z^{6})(x^{5}y^{4}z^{21})$

Question 180

Perform the following division.

$\frac{-9x}{-3x}=?$

Question 181

Perform the following division.

$\frac{24x}{4x}=?$

Question 182

Perform the following division.

$\frac{16x^{5}y^{7}}{-x^{4}y^{5}}=?$

Question 183

Perform the following division.

$\frac{48y^{27}}{6y^{9}}=?$

Question 184

Perform the following division.

$\frac{x^{15}y^{20}}{-y^{13}}=?$

Question 185

Perform the following multiplication using the distributive property.

$2(x^2 + x + 2)$

Question 186

Perform the following multiplication using the distributive property.

$7(5x^2 + 2x + 3)$

Question 187

Perform the following multiplication using the distributive property.

$4(2x^2 + 3x + 7)$

Question 188

If x = -4, determine the numerical value of the following algebraic expression.

$$\frac{-4x+16}{8}$$

Question 189

If x = 15, determine the numerical value of the following algebraic expression.

$$\frac{-2x+5}{5}$$

Question 190

If x = 5, determine the numerical value of the following algebraic expression.

$(4x - 15)^2$

Question 191

If x = -3 and y = -2, determine the numerical value of the following algebraic expression.

$-4xy + x^2$

Question 192

If x = -4, determine the numerical value of the following algebraic expression.

$x^2 - 2x - 5$

Question 193

If x = 6 and y = -4, determine the numerical value of the following algebraic expression.

$(3x + y)^2$

Question 194

If x = 2, determine the numerical value of the following algebraic expression.

$2x^2 + 3x + 1$

Question 195

Translate the following phrase into an algebraic expression.

The difference between the mother's age "m" and the son's age "s".

Question 196

Translate the following phrase into an algebraic expression.

"The product of z with the difference between x and y."

Question 197

Translate the following phrase into an algebraic expression.

"The sum of two-thirds of x and half of y."

Question 198

Translate the following phrase into an algebraic expression.

"Bill's age in 10 years if his age now is x."

Question 199

Translate the following phrase into an algebraic expression.

"The area of a rectangle if the length is x and the width is y."

Question 200

Solve for the variable x in the following equation:

$$\frac{x}{13} = 9$$

Question 201

Solve for the variable x in the following equation:

$$\frac{x}{3} = 6$$

Question 202

Solve for the variable x in the following equation:

$$x - 0.9 = 1.5$$

Question 203

Solve for the variable x in the following equation:

$$\frac{x}{14} = -8$$

Question 204

Determine if the following solution is correct. If not, calculate the correct value of x.

$$4(8x+10) = 104$$

$$32x + 40 = 104$$

$$32x + 40 - 40 = 104 - 40$$

$$32x = 64$$

$$x = 2$$

Question 205

Solve the equation using the distributive property and verify your result.

$$3(x-10)+30 = 90$$

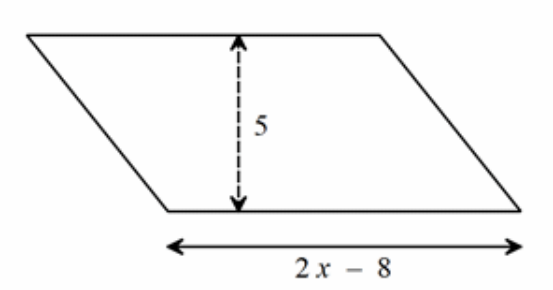
Question 206

Solve for x using the distributive property and verify your result.

$$\frac{5(3x+1)}{2} = 55$$

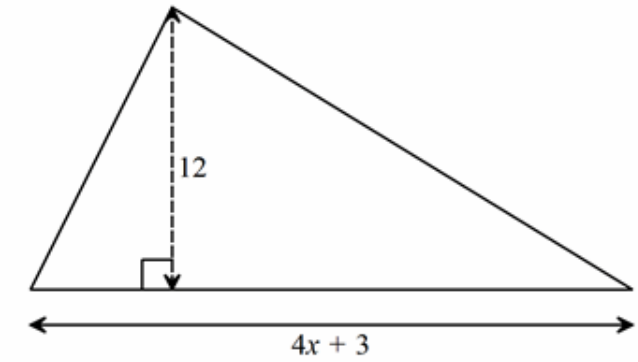
Question 207

Given that the area of the parallelogram is 85 units^2, solve for x.



Question 208

Given that the area of the triangle is 48 units^2, solve for x.



Question 209

Solve for ***d*** in the equation given below.

$$7-2(2d-1)-13(d+1)=59-8d$$

Question 210

Solve for ***b*** in the equation given below.

$$1+9(b-1)-12(b+1)=2b+5$$

Question 211

Solve for ***k*** in the equation given below.

$$k+2(k-3)=2(4k+3)+k$$

Question 212

Solve for ***m*** in the equation given below.

$12(m-3)-3=6-3(2m-3)$

Question 213

Solve for ***t*** in the equation given below.

$t+7=52-4t$

Question 214

Determine the value of x in the following equation.

$$\frac{2x-8}{5}=6$$

Question 215

Determine the value of x in the following equation.

$$\frac{7x-8}{6}=8$$

Question 216

Determine the value of x in the following equation.

$$\frac{9x+2}{7}=8$$