



مؤسسة الإمارات للتعليم المدرسي
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MINISTRY OF EDUCATION

G9 Adv Term 2 (2023-24)

End of Term (EoT) Questions

Justin Dsouza



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Justin Daryl Dsouza

Al Orouba Boys School, Sharjah (5034)

YouTube

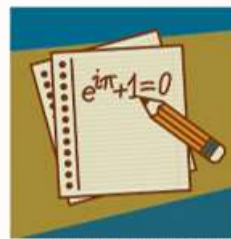




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G9 Adv Term 2

Part 1: MCQ & Part 2 FRQ

EoT2 2023-24

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Number of MCQ عدد الأسئلة الموضوعية	15
Marks of MCQ درجة الأسئلة الموضوعية	4
Number of FRQ عدد الأسئلة المقالية	6
Marks per FRQ الدرجات للأسئلة المقالية	(5-10)
Type of All Questions نوع كافة الأسئلة	الأسئلة الموضوعية / MCQ الأسئلة المقالية / FRQ
Maximum Overall Grade الدرجة القصوى الممكنة	100
Exam Duration - مدة الامتحان	150 minutes
Mode of Implementation - طريقة التطبيق	Paper-Based
Calculator	Allowed
الآلة الحاسبة	مسموحة

Question* السؤال*	Learning Outcome/Performance Criteria** ناتج التعلم / معايير الأداء**	Reference(s) in the Student Book (English Version) المرجع في كتاب الطالب (النسخة الانجليزية)	
		Example/Exercise مثال/تمرين	Page الصفحة
	1	Solve systems of equations by eliminating a variable using multiplication and addition.	(1-12) 417
	2	calculate measures of line segments	(10-23) 573
	3	Solve linear equations by graphing systems of equations.	(11-16) 395
	4	Find the distance between two points on the coordinate plane.	(21-26) 581, 582
	5	Analyze figures characteristics of adjacent angles, linear pairs of angles, and vertical angles	(12-17) 621, 622
	6	Calculate surface areas and volumes.	(16-19) 664
	7	Identify points, lines, and planes	(1-7) 565
	8	Solve systems of equations by using the substitution method	(1-15) 403

Question*	Learning Outcome/Performance Criteria**	Reference(s) in the Student Book (English Version)	
		المرجع في كتاب الطالب (النسخة الانجليزية)	
		Example/Exercise	Page
السؤال*	نتائج التعلم / معايير الأداء**	مثال/تمرين	الصفحة
	9	Solve systems of equations by eliminating a variable using addition.	(1-13) 409
	10	Apply the definition of congruents line segments to find missing values	(28-33) 574
	11	Find the length of a line segment on a number line.	(1-9) 573
	12	determine the number of solutions of a system of liner equations.	(1-10) 395
	13	Find a point on a directed line segment on a number line that is a given fractional distance from the initial point.	(21-30) 347
	14	Find a point that partitions a directed line segment on the coordinate plane in a given ratio.	(16-27) 354
	15	Solve systems of linear inequalitis by by graphing	(1-16) 363

Question*		Learning Outcome/Performance Criteria**	Reference(s) in the Student Book (English Version)	
			المرجع في كتاب الطالب (النسخة الانجليزية)	
السؤال*		ناتج التعلم / معايير الأداء**	Example/Exercise	Page
			مثال/تمرين	الصفحة
	16	Find perimeters, circumference, and areas of two-dimensional geometric shapes.	(1-6)	641
	17	Find the coordinates of the midpoint of a segment with the given endpoints	(1-16)	605
	18	Calculate angle measures using the characteristics complementary and supplementary	(1-6)	631
	19	Calculate surface areas and volumes.	(7-12)	663
	20	Calculate angle measures using the characteristics complementary and supplementary angles	(15-19)	632
	21	Identify the orthographic drawings that best model selected three-dimensional figures.	(17-22)	676, 677



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Part I: MCQ

EoT2 2023-24

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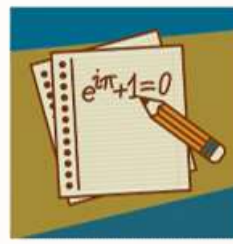


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Question 1

Solve systems of equations by eliminating a variable using multiplication and addition

Page 417

Exercise 1 - 12

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Use elimination to solve each system of equations.

1. $x + y = 2$
 $-3x + 4y = 15$

2. $x - y = -8$
 $7x + 5y = 16$

3. $x + 5y = 17$
 $-4x + 3y = 24$



Use elimination to solve each system of equations.

4. $6x + y = -39$
 $3x + 2y = -15$

5. $2x + 5y = 11$
 $4x + 3y = 1$

6. $3x - 3y = -6$
 $-5x + 6y = 12$

Use elimination to solve each system of equations.

7. $3x + 4y = 29$
 $6x + 5y = 43$

8. $8x + 3y = 4$
 $-7x + 5y = -34$

9. $8x + 3y = -7$
 $7x + 2y = -3$

Use elimination to solve each system of equations.

10. $4x + 7y = -80$
 $3x + 5y = -58$

11. $12x - 3y = -3$
 $6x + y = 1$

12. $-4x + 2y = 0$
 $10x + 3y = 8$



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Question 2

Calculate measures of line segments

Page 573

Exercise 10 - 23

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Find the value of the variable and YZ if Y is between X and Z .

10. $XY = 11$, $YZ = 4c$, $XZ = 83$

11. $XY = 6b$, $YZ = 8b$, $XZ = 175$

12. $XY = 7a$, $YZ = 5a$, $XZ = 6a + 24$

13. $XY = 5.5$, $YZ = 2c$, $XZ = 8.9$



Find the value of the variable and YZ if Y is between X and Z .

14. $XY = 5n$, $YZ = 2n$, $XZ = 91$

15. $XY = 4w$, $YZ = 6w$, $XZ = 12w - 8$

16. $XY = 11d$, $YZ = 9d - 2$, $XZ = 5d + 28$

17. $XY = 4n + 3$, $YZ = 2n - 7$, $XZ = 20$



Find the value of the variable and YZ if Y is between X and Z .

18. $XY = 3a - 4$, $YZ = 6a + 2$, $XZ = 5a + 22$

19. $XY = 3k - 2$, $YZ = 7k + 4$, $XZ = 4k + 38$

20. $XY = 4x$, $YZ = x$, and $XZ = 25$

21. $XY = 4x$, $YZ = 3x$, and $XZ = 42$



Find the value of the variable and YZ if Y is between X and Z .

22. $XY = 12$, $YZ = 2x$, and $XZ = 28$

23. $XY = 2x + 1$, $YZ = 6x$, and $XZ = 81$





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Question 3

Solve linear equations by graphing systems of equations

Page 395

Exercise 11 - 16

YouTube



Graph each system and determine the number of solutions it has. If it has one solution, determine its coordinates.

11. $y = -3$
 $y = x - 3$

12. $y = 4x + 2$
 $y = -2x - 4$

Graph each system and determine the number of solutions it has. If it has one solution, determine its coordinates.

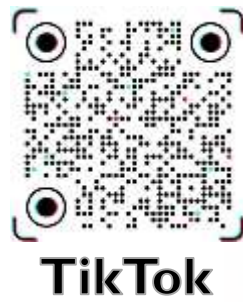
13. $y = x - 6$
 $y = x + 2$

14. $x + y = 4$
 $3x + 3y = 12$

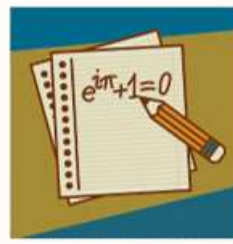
Graph each system and determine the number of solutions it has. If it has one solution, determine its coordinates.

15. $x - y = -2$
 $-x + y = 2$

16. $2x + 3y = 12$
 $2x - y = 4$



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Question 4

Find the distance between two points on the
coordinate plane

Page 581 & 582
Exercise 21 - 26

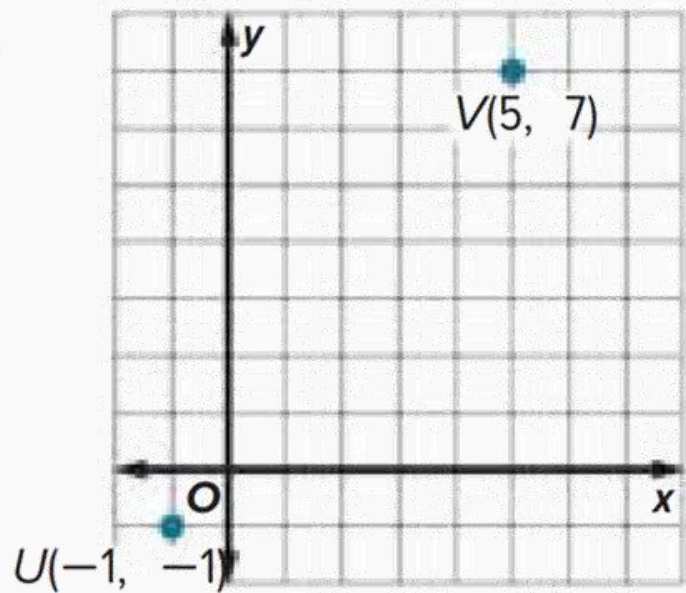
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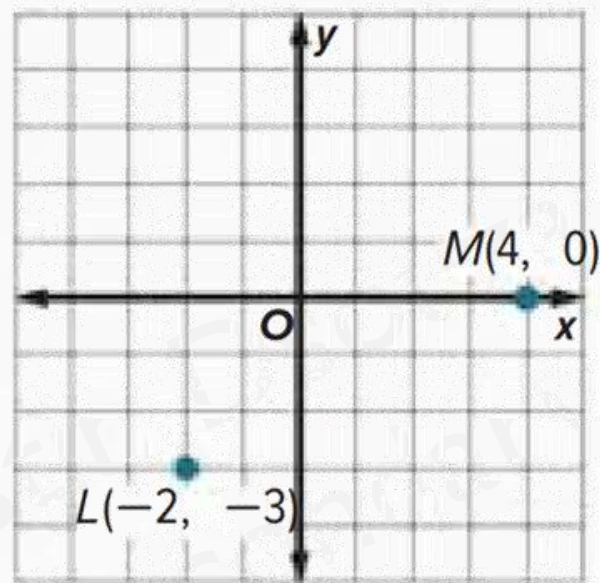
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Find the distance between each pair of points.

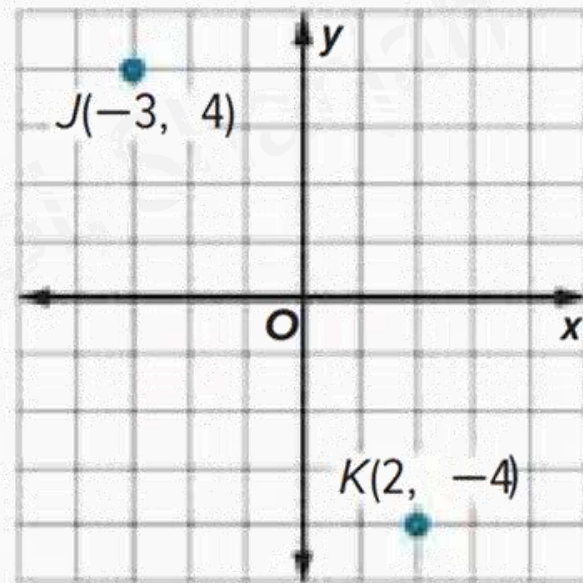
21.



22.



23.



Find the distance between each pair of points.

24. $A(2, 6), N(5, 10)$

25. $R(3, 4), T(7, 2)$

26. $X(-3, 8), Z(-5, 1)$





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Question 5

Analyze figures characteristics of adjacent angles,
linear pairs of angles, and vertical angles

Page 612 & 622

Exercise 12 - 17

YouTube

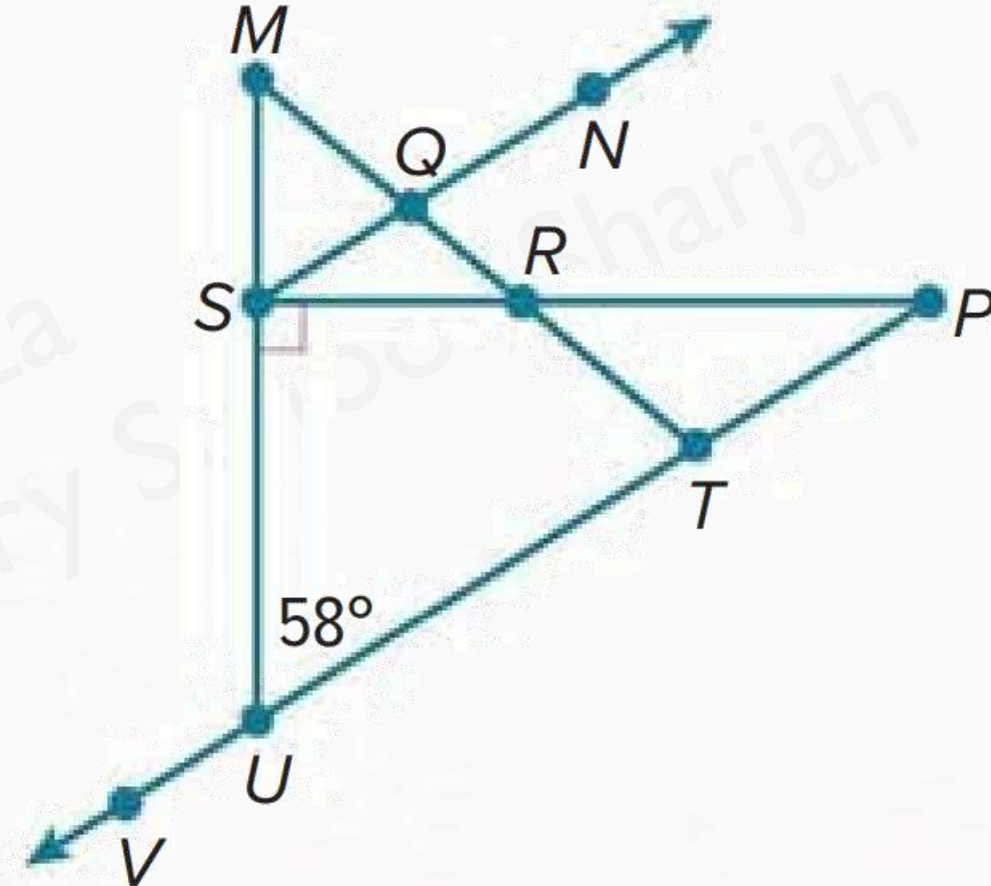


Refer to the figure.

12. Name two adjacent angles.

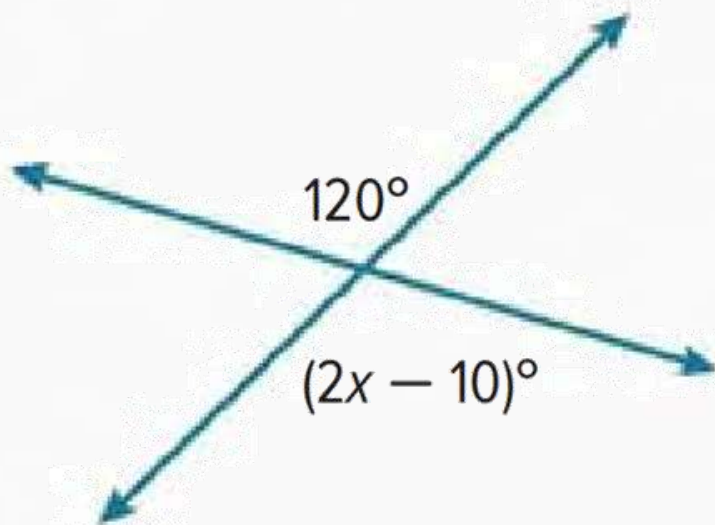
13. Name two vertical angles.

14. Find $m\angle SUV$.

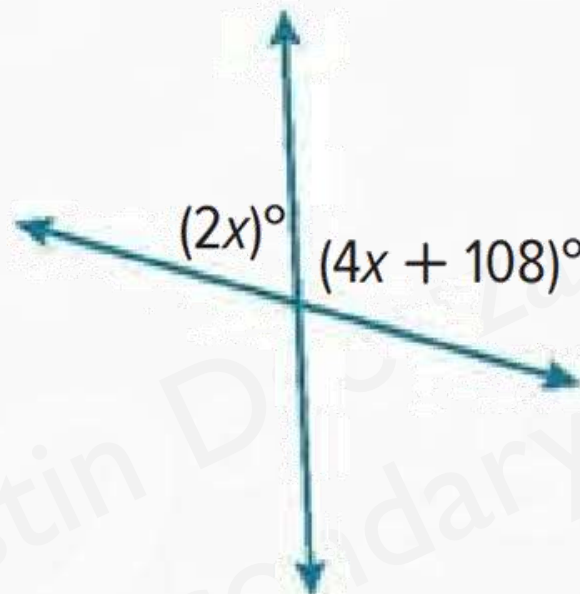


Find the value of each variable.

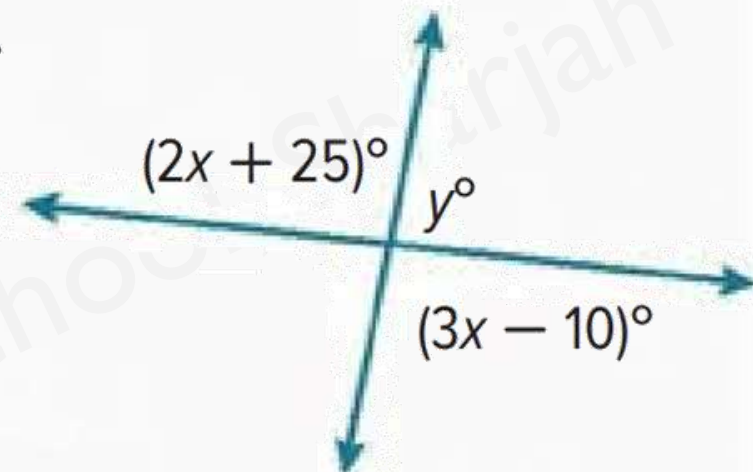
15.



16.



17.





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Question 6

Calculate surface areas and volumes

Page 664

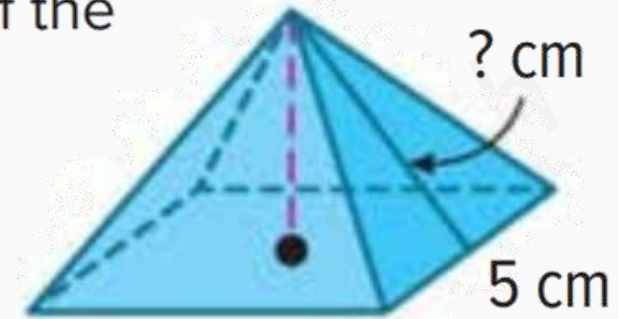
Exercise 16 - 19

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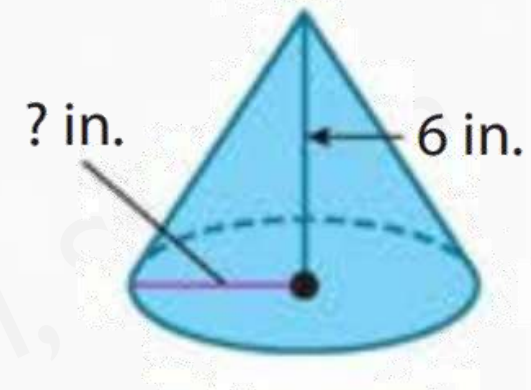
- 17.** The model of a roof is in the shape of a square pyramid, as shown. If the surface area of the model is 64 cm^2 , what is the slant height?



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- 18.** A candle is in the shape of a pyramid. The volume of a candle is 27 cubic centimeters and its height is 6 centimeters. Find the area of the base of the candle.

- 19.** A disposable cup is in the shape of a cone, as shown. The cup has a volume of about 48.8 in^3 . What is the radius of the cup to the nearest inch?





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Question 7

Identify points, lines, and planes

Page 565

Exercise 1 - 7

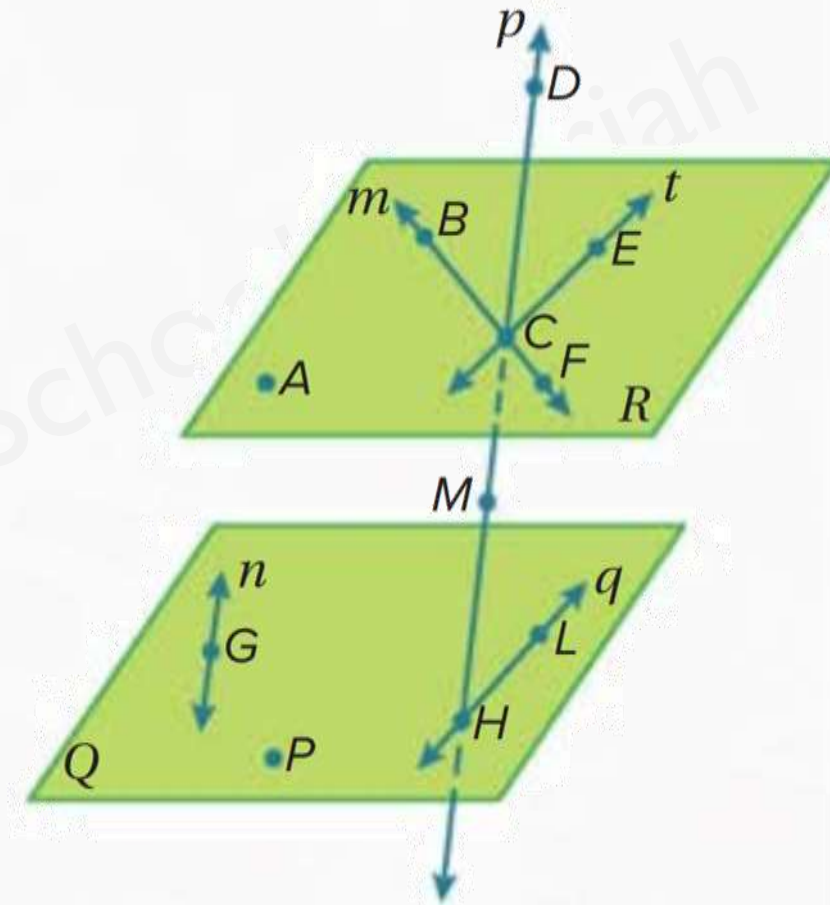
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Refer to the figure for Exercises 1–7.

1. Name the lines that are only in plane Q .
2. How many planes are labeled in the figure?
3. Name the plane containing the lines m and t .
4. Name the intersection of lines m and t .

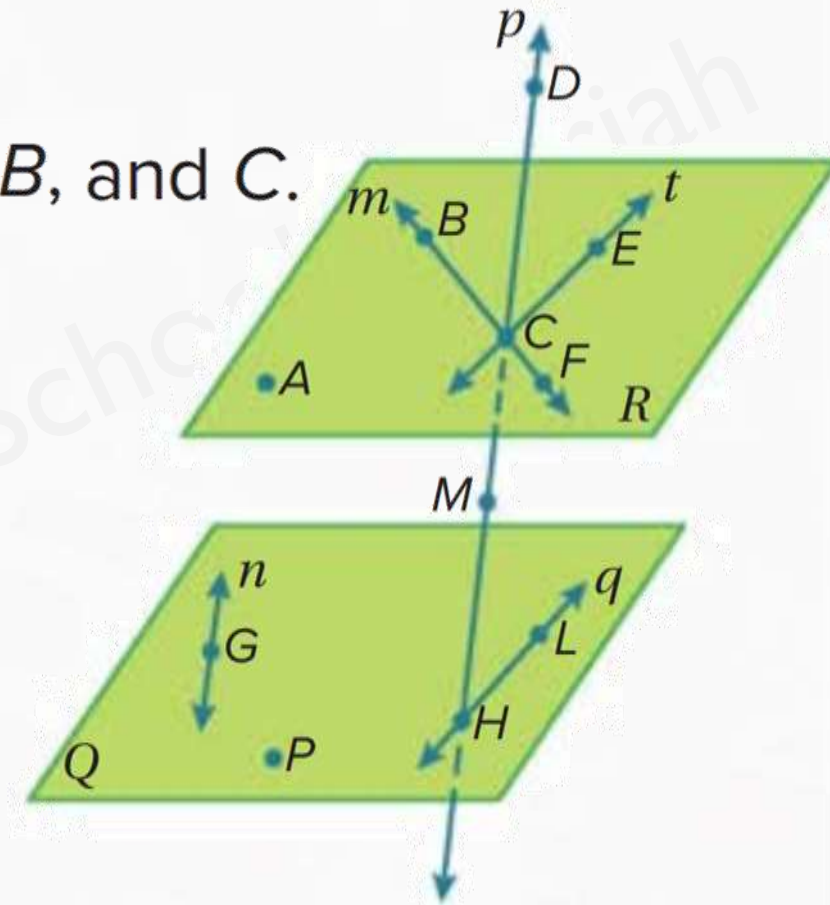


Refer to the figure for Exercises 1–7.

5. Name a point that is *not* coplanar with points A , B , and C .

6. Are points F , M , G , and P coplanar? Explain.

7. Does line n intersect line q ? Explain.





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Question 8

Solve systems of equations by using the substitution method

Page 403

Exercise 1 - 15

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Use substitution to solve each system of equations.

1. $y = 5x + 1$
 $4x + y = 10$

2. $y = 4x + 5$
 $2x + y = 17$

3. $y = 3x - 34$
 $y = 2x - 5$



Use substitution to solve each system of equations.

4. $y = 3x - 2$
 $y = 2x - 5$

5. $2x + y = 3$
 $4x + 4y = 8$

6. $3x + 4y = -3$
 $x + 2y = -1$

Use substitution to solve each system of equations.

7. $y = -3x + 4$
 $-6x - 2y = -8$

8. $-1 = 2x - y$
 $8x - 4y = -4$

9. $x = y - 1$
 $-x + y = -1$

Use substitution to solve each system of equations.

10. $y = -4x + 11$
 $3x + y = 9$

11. $y = -3x + 1$
 $2x + y = 1$

12. $3x + y = -5$
 $6x + 2y = 10$

Use substitution to solve each system of equations.

13. $5x - y = 5$
 $-x + 3y = 13$

14. $2x + y = 4$
 $-2x + y = -4$

15. $-5x + 4y = 20$
 $10x - 8y = -40$





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Question 9

Solve systems of equations by eliminating a variable using addition

Page 409

Exercise 1 - 13

YouTube



Use elimination to solve each system of equations.

1. $-v + w = 7$

$$v + w = 1$$

2. $y + z = 4$

$$y - z = 8$$

3. $-4x + 5y = 17$

$$4x + 6y = -6$$



Use elimination to solve each system of equations.

4. $5m - 2p = 24$
 $3m + 2p = 24$

5. $a + 4b = -4$
 $a + 10b = -16$

6. $6r - 6t = 6$
 $3r - 6t = 15$

Use elimination to solve each system of equations.

7. $6c - 9d = 111$
 $5c - 9d = 103$

8. $11f + 14g = 13$
 $11f + 10g = 25$

9. $9x + 6y = 78$
 $3x - 6y = -30$

Use elimination to solve each system of equations.

10. $3j + 4k = 23.5$
 $8j - 4k = 4$

11. $-3x - 8y = -24$
 $3x - 5y = 4.5$

12. $6x - 2y = 1$
 $10x - 2y = 5$

13. $x - y = 1$
 $x + y = 3$

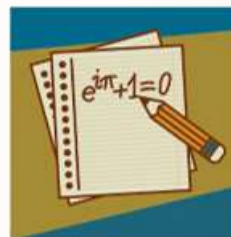




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Question 10

Apply the definition of congruent line segments to find missing values

Page 574

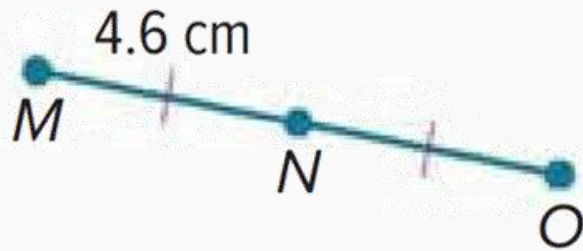
Exercise 28 - 33

YouTube

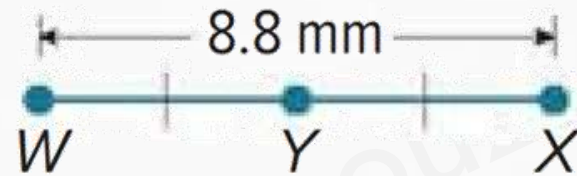


Find the measure of each segment.

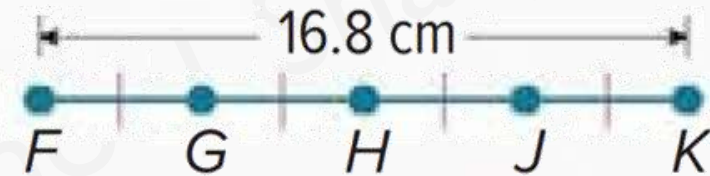
28. \overline{MO}



29. \overline{WY}

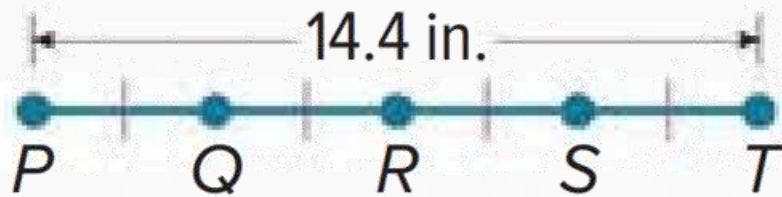


30. \overline{FG}

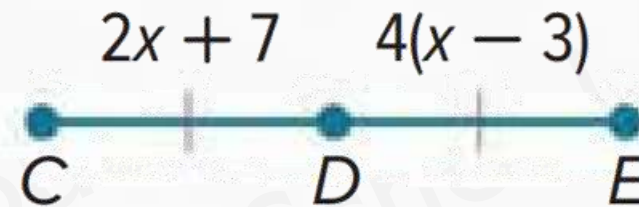


Find the measure of each segment.

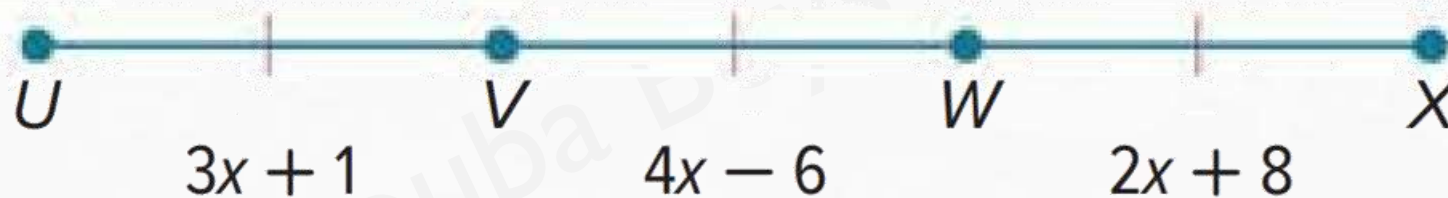
31. \overline{QT}



32. \overline{DE}



33. \overline{UX}





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Question 11

Find the length of a line segment on a number line

Page 573

Exercise 1 - 9

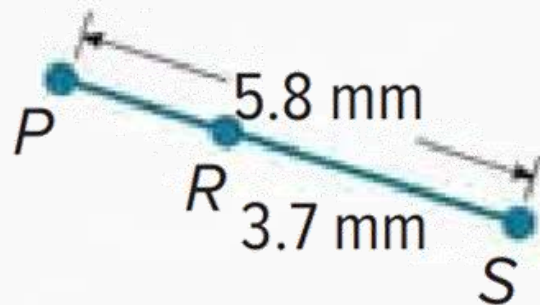
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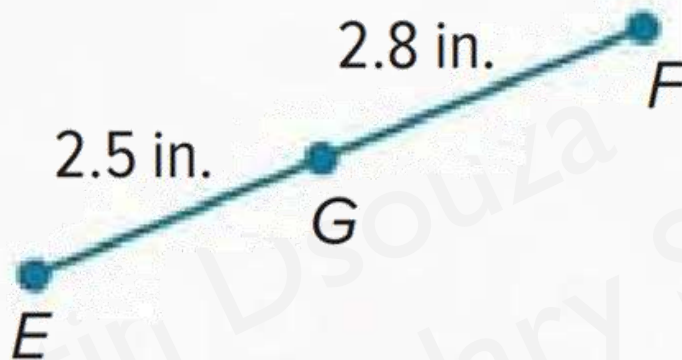
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Find the measure of each segment.

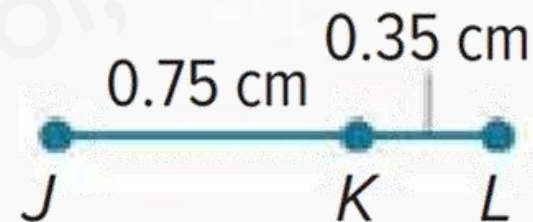
1. \overline{PR}



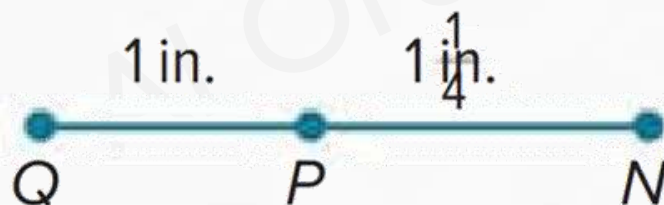
2. \overline{EF}



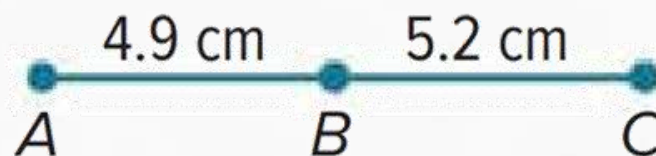
3. \overline{JL}



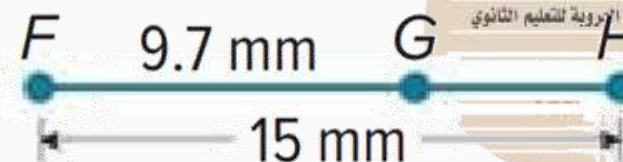
7. \overline{NQ}



8. \overline{AC}



9. \overline{GH}

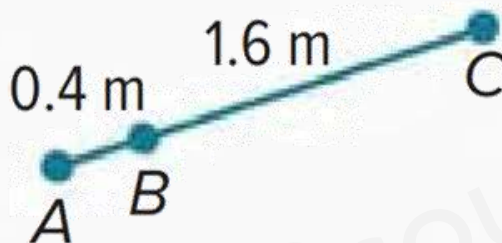


Find the measure of each segment.

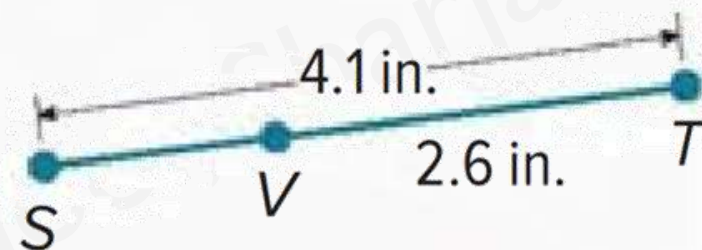
4. \overline{HJ}



5. \overline{AC}

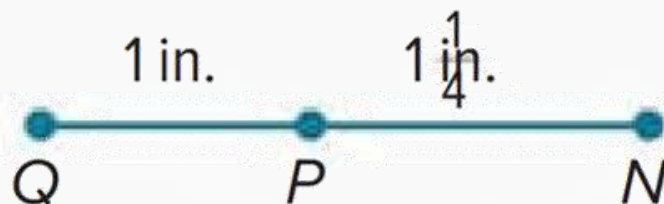


6. \overline{SV}

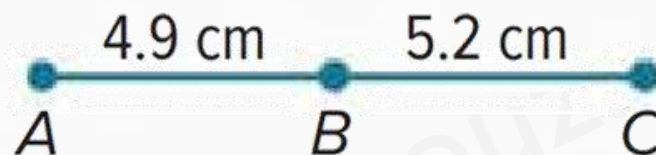


Find the measure of each segment.

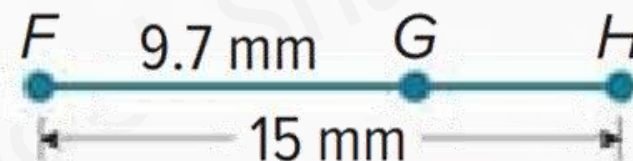
7. \overline{NQ}



8. \overline{AC}



9. \overline{GH}





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Question 12

Determine the number of solutions of a system of liner equations

Page 395

Exercise 1 - 10

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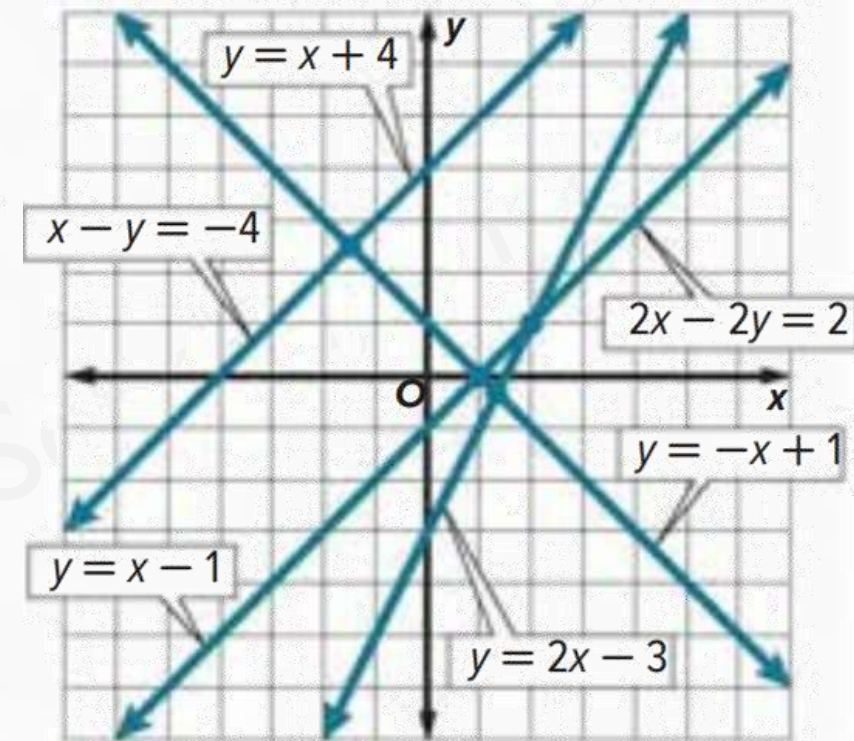
Use the graph to determine the number of solutions the system has. Then state whether the system of equations is *consistent* or *inconsistent* and if it is *independent* or *dependent*.

1. $y = x - 1$
 $y = -x + 1$

2. $x - y = -4$
 $y = x + 4$

3. $y = x + 4$
 $2x - 2y = 2$

4. $y = 2x - 3$
 $2x - 2y = 2$



Determine the number of solutions the system has. Then state whether the system of equations is *consistent* or *inconsistent* and if it is *independent* or *dependent*.

5. $y = \frac{1}{2}x$
 $y = x + 2$

6. $4x - 6y = 12$
 $-2x + 3y = -6$

Determine the number of solutions the system has. Then state whether the system of equations is *consistent* or *inconsistent* and if it is *independent* or *dependent*.

7. $8x - 4y = 16$
 $-5x - 5y = 5$

8. $2x + 3y = 10$
 $4x + 6y = 12$

Determine the number of solutions the system has. Then state whether the system of equations is *consistent* or *inconsistent* and if it is *independent* or *dependent*.

9. $y = -\frac{3}{2}x + 5$
 $y = -\frac{2}{3}x + 5$

10. $y = x - 3$
 $y = -4x + 3$



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Question 13

Find a point on a directed line segment on a number line that is a given fractional distance from the initial point

Page 347

Exercise 21 - 30

YouTube



Solve each inequality.

21. $11 + m \geq 15$

22. $h - 26 < 4$



Solve each inequality.

23. $8 \leq r - 14$

24. $-7 > 20 + c$

Solve each inequality.

25. $2a \leq -4 + a$

26. $z + 4 \geq 2z$



Solve each inequality.

27. $w - 5 \leq 2w$

28. $3y \leq 2y - 6$



Solve each inequality.

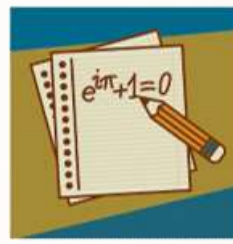
29. $6x + 5 \geq 7x$

30. $-9 + 2a < 3a$





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Question 14

**Find a point that partitions a directed line segment
on the coordinate plane in a given ratio**

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Exercise 16 - 27

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Solve each inequality. Then graph the solution on a number line.

16. $-3(7n + 3) < 6n$

17. $21 \geq 3(a - 7) + 9$



Solve each inequality. Then graph the solution on a number line.

18. $2y + 4 > 2(3 + y)$

19. $3(2 - b) < 10 - 3(b - 6)$



Solve each inequality. Then graph the solution on a number line.

20. $7 + t \leq 2(t + 3) + 2$

21. $8a + 2(1 - 5a) \leq 20$



Solve each inequality. Check your solution.

22. $2(x - 4) \leq 2 + 3(x - 6)$

23. $\frac{2x - 4}{6} \geq -5x + 2$

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Al Orouba Boys Secondary School, Sharjah



Solve each inequality. Check your solution.

24. $5.6z + 1.5 < 2.5z - 4.7$

25. $0.7(2m - 5) \geq 21.7$



Solve each inequality. Check your solution.

26. $2(-3m - 5) \geq -28$

27. $-6(w + 1) < 2(w + 5)$





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Question 15

Solve systems of linear inequalities by graphing

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Exercise 1 - 16

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Solve each compound inequality. Then graph the solution set.

1. $f - 6 < 5$ and $f - 4 \geq 2$

2. $n + 2 \leq -5$ and $n + 6 \geq -6$



Solve each compound inequality. Then graph the solution set.

3. $y - 1 \geq 7$ or $y + 3 < -1$

4. $t + 14 \geq 15$ or $t - 9 < -10$



Solve each compound inequality. Then graph the solution set.

5. $-5 < 3p + 7 \leq 22$

6. $-3 \leq 7c + 4 < 18$

Solve each compound inequality. Then graph the solution set.

7. $5h - 4 \geq 6$ and $7h + 11 < 32$

8. $22 \geq 4m - 2$ or $5 - 3m \leq -13$

Solve each compound inequality. Then graph the solution set.

9. $-y + 5 \geq 9$ or $3y + 4 < -5$

10. $-4a + 13 \geq 29$ and $10 < 6a - 14$



Solve each compound inequality. Then graph the solution set.

11. $3b + 2 < 5b - 6 \leq 2b + 9$

12. $-2a + 3 \geq 6a - 1 > 3a - 10$



Solve each compound inequality. Then graph the solution set.

13. $10m - 7 < 17m$ or $-6m > 36$

14. $5n - 1 < -16$ or $-3n - 1 < 8$

Solve each compound inequality. Then graph the solution set.

15. $m + 3 \geq 5$ and $m + 3 < 7$

16. $y - 5 < -4$ or $y - 5 \geq 1$





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G9 Adv Term 2

Part 2: Writing (FRQ)

EoT2 2023-24

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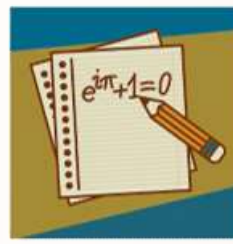
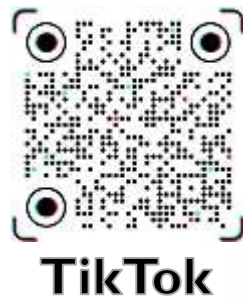


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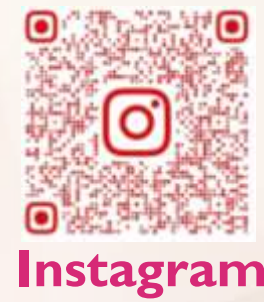


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Question 16

Find perimeters, circumference, and areas of
two-dimensional geometric shapes

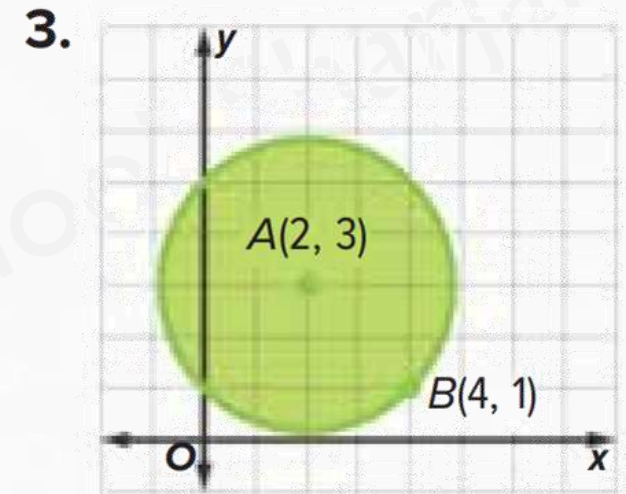
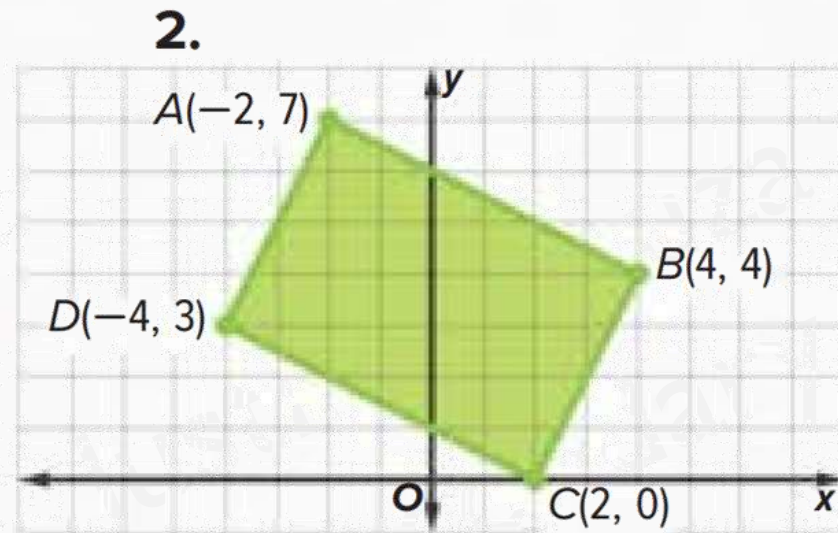
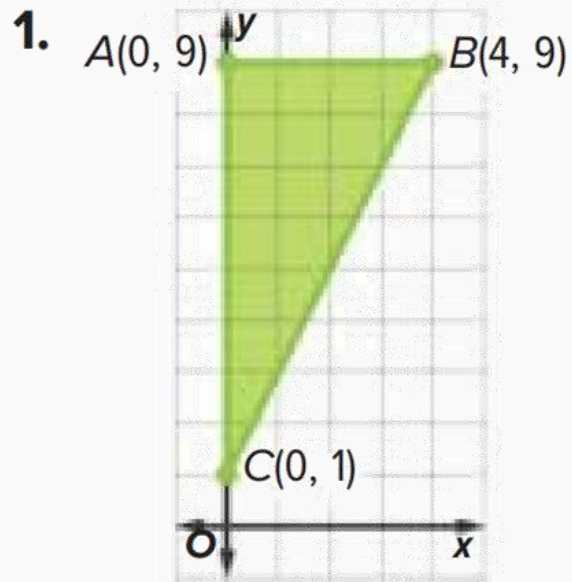
Page 641

Exercise 1 - 6

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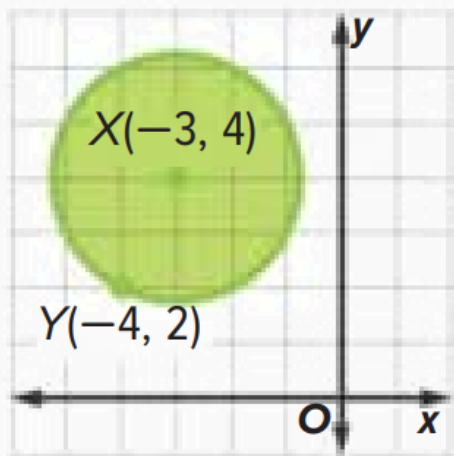


Find the perimeter or circumference and area of each figure if each unit on the graph measures 1 centimeter. Round answers to the nearest tenth, if necessary.

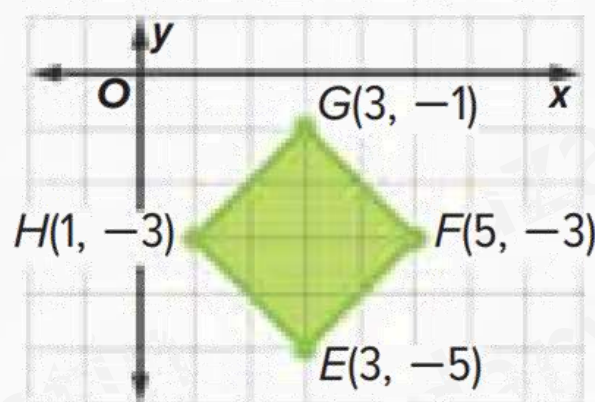


Find the perimeter or circumference and area of each figure if each unit on the graph measures 1 centimeter. Round answers to the nearest tenth, if necessary.

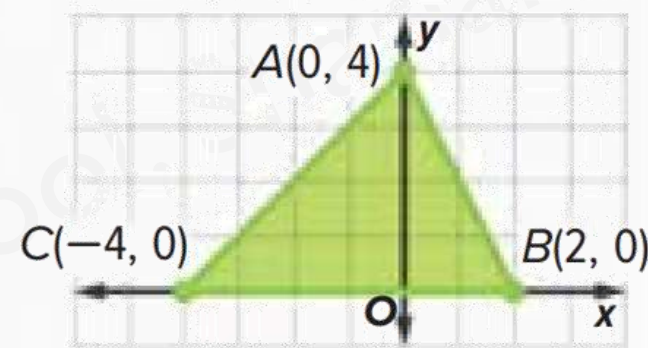
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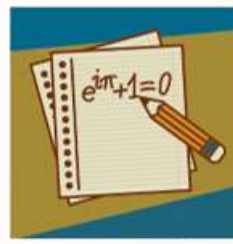


6.





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Question 17

Find the coordinates of the midpoint of a segment with the given endpoints

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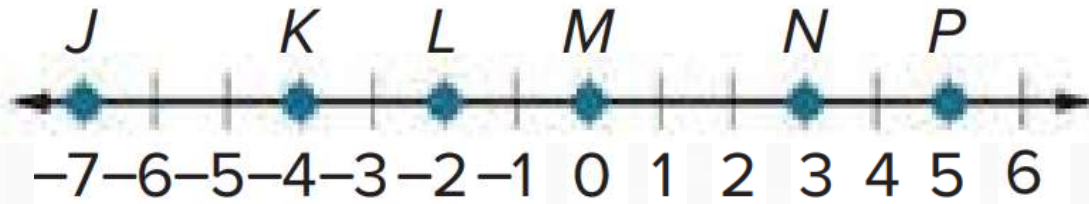
Exercise 1 - 16

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Use the number line to find the coordinate of the midpoint of each segment.

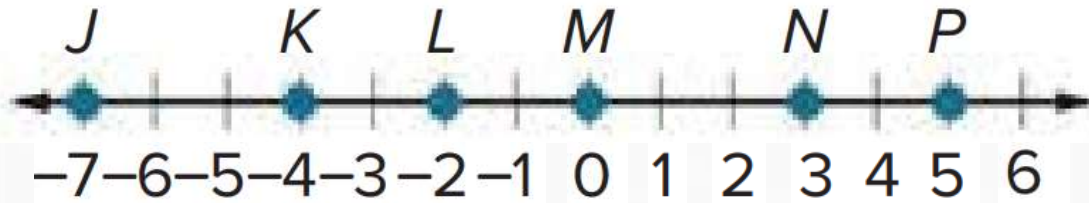


1. \overline{KM}

2. \overline{JP}

3. \overline{LN}

Use the number line to find the coordinate of the midpoint of each segment.

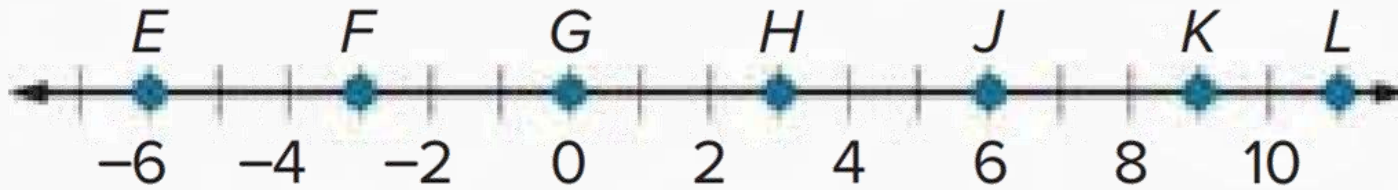


4. \overline{MP}

5. \overline{LP}

6. \overline{JN}

Use the number line to find the coordinate of the midpoint of each segment.



7. \overline{FK}

8. \overline{HK}

9. \overline{EF}

Use the number line to find the coordinate of the midpoint of each segment.

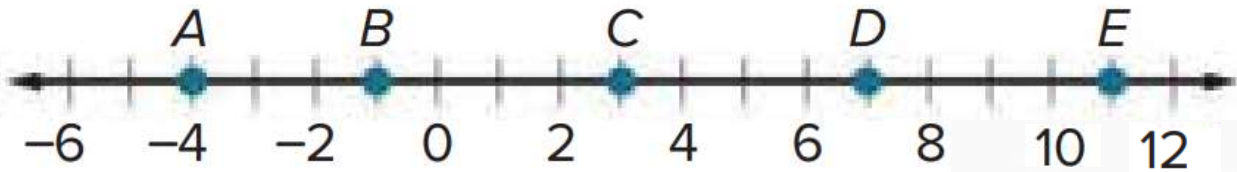


10. \overline{FG}

11. \overline{JL}

12. \overline{EL}

USE TOOLS Use the number line to find the coordinate of the midpoint of each segment.



13. \overline{DE}

14. \overline{BC}

15. \overline{BD}

16. \overline{AD}



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Question 18

Calculate angle measures using the characteristics complementary and supplementary

Page 631

Exercise 1 - 6

YouTube



1. Find the measures of two supplementary angles if the difference between the measures of the two angles is 35° .
2. $\angle E$ and $\angle F$ are complementary. The measure of $\angle E$ is 54° more than the measure of $\angle F$. Find the measure of each angle.



- 3.** The measure of an angle's supplement is 76° less than the measure of the angle. Find the measures of the angle and its supplement.
- 4.** $\angle Q$ and $\angle R$ are complementary. The measure of $\angle Q$ is 26° less than the measure of $\angle R$. Find the measure of each angle.



5. The measure of the supplement of an angle is three times the measure of the angle. Find the measures of the angle and its supplement.



6. The bascule bridge shown is opening from its horizontal position to its fully vertical position. So far, the bridge has lifted 35° in 21 seconds. At this rate, how much longer will it take for the bridge to reach its vertical position?





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Question 19

Calculate surface areas and volumes

Page 663

Exercise 7 - 12

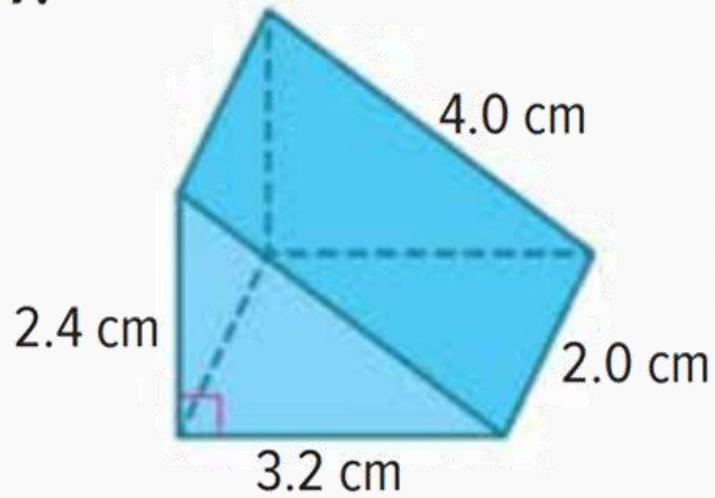
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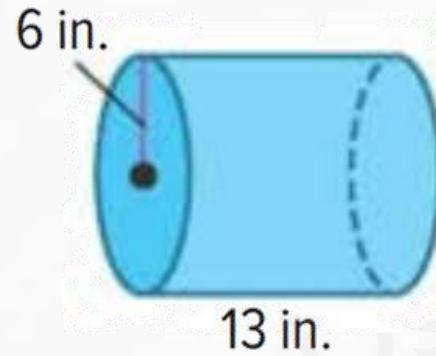
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Find the surface area and volume of each solid. Round each measure to the nearest tenth, if necessary.

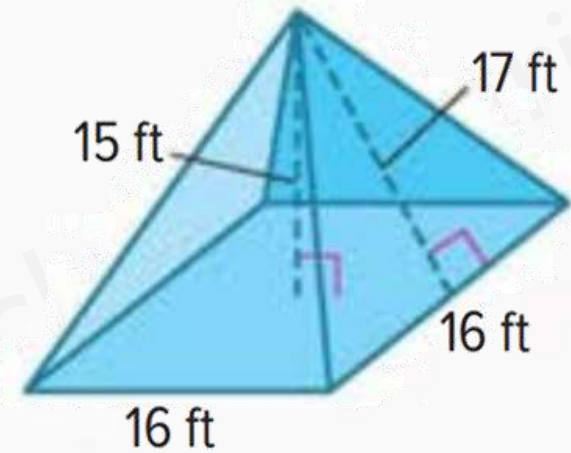
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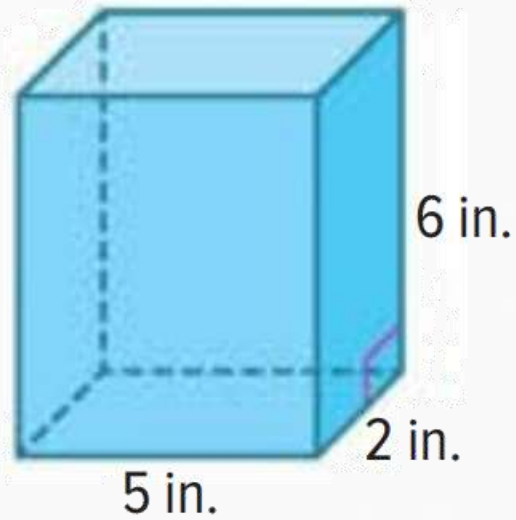


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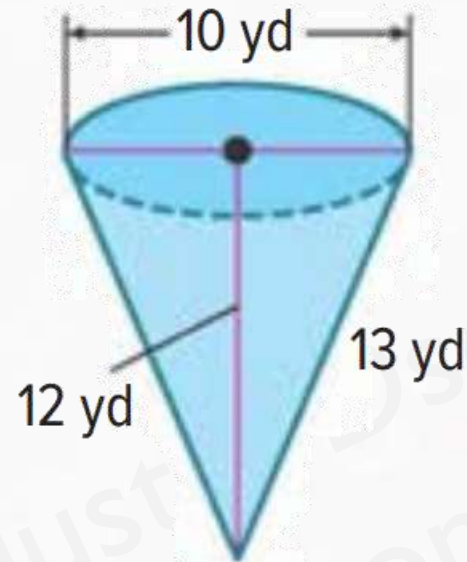


Find the surface area and volume of each solid. Round each measure to the nearest tenth, if necessary.

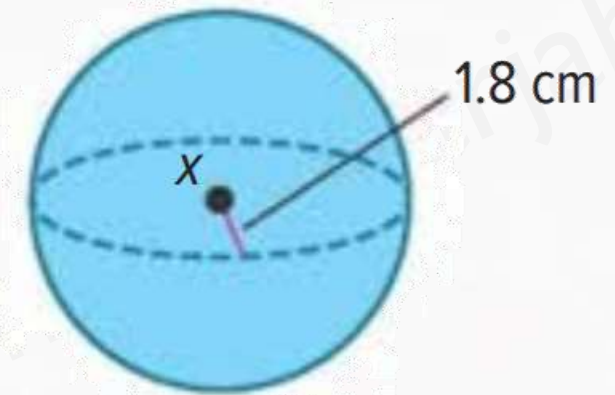
10.



11.



12.





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Question 20

Calculate angle measures using the characteristics complementary and supplementary angles

Page 632

Exercise 15 - 19

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15. The measure of the supplement of an angle is 60° less than four times the measure of the complement of the angle. Find the measure of the angle.

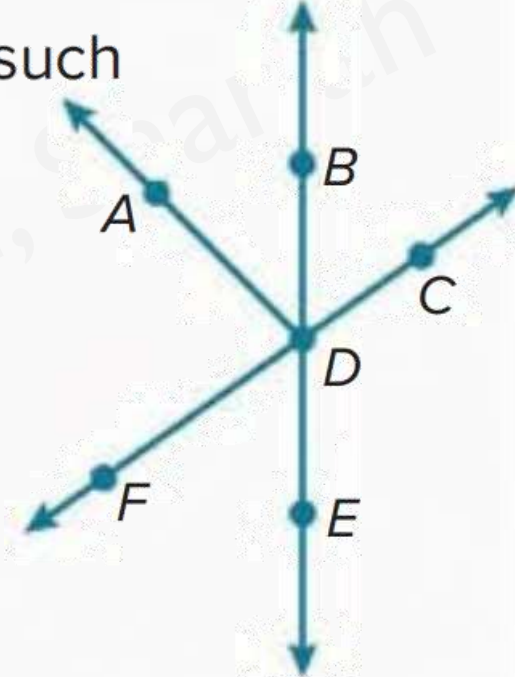


- 16.** $\angle 6$ and $\angle 7$ form a linear pair. Twice the measure of $\angle 6$ is twelve more than four times the measure of $\angle 7$. Find the measure of each angle.



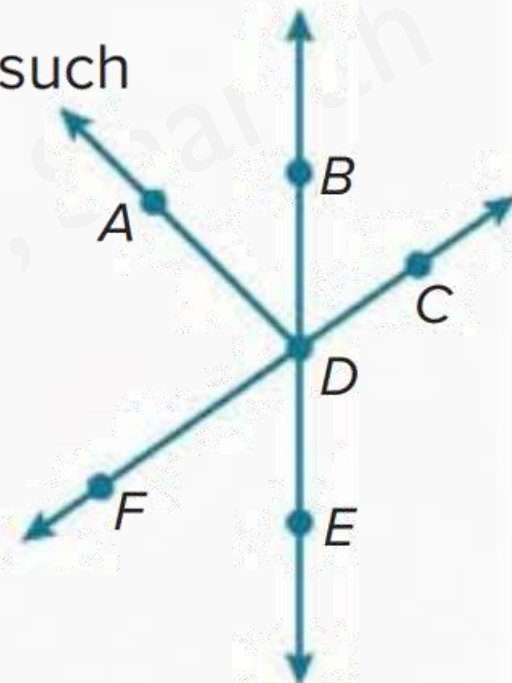
Refer to the figure at the right.

- 17.** If $m\angle ADB = (6x - 4)^\circ$ and $m\angle BDC = (4x + 24)^\circ$, find the value of x such that $\angle ADC$ is a right angle.



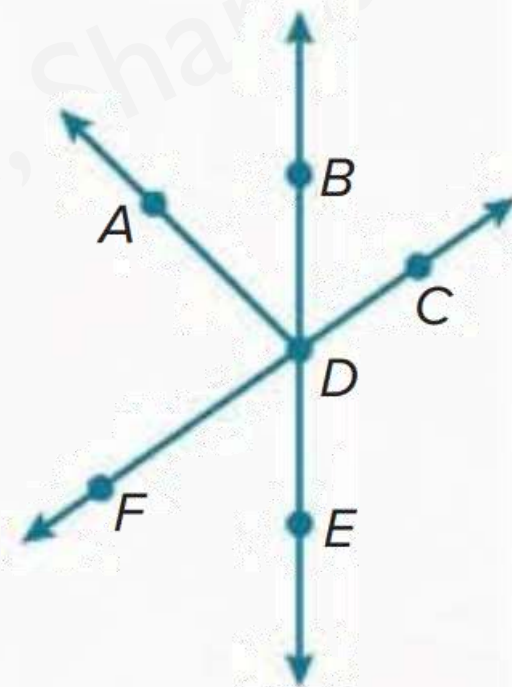
Refer to the figure at the right.

- 18.** If $m\angle FDE = (3x - 15)^\circ$ and $m\angle FDB = (5x + 59)^\circ$, find the value of x such that $\angle FDE$ and $\angle FDB$ are supplementary.



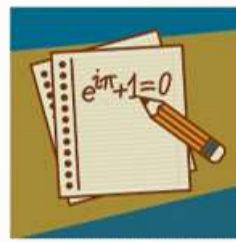
Refer to the figure at the right.

19. If $m\angle BDC = (8x + 12)^\circ$ and $m\angle FDB = (12x - 32)^\circ$, find $m\angle FDE$.





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Question 21

Identify the orthographic drawings that best model selected three-dimensional figures

Page 676 & 677

Exercise 17 - 22

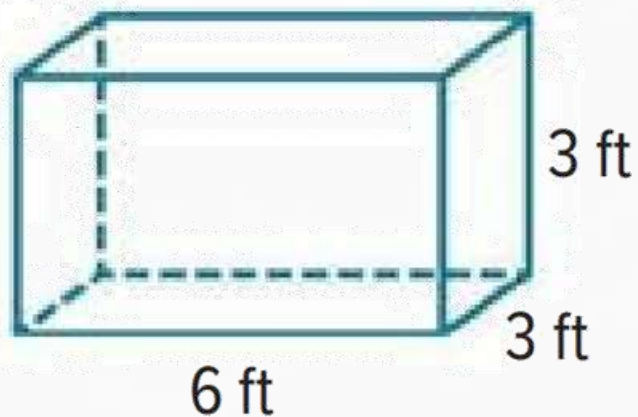
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Draw a net for each solid or object.

17.



18.



Draw a net for each solid or object.

19.



20.



Draw a net for each solid or object.

21.



22.





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