



River City Science Academy Mandarin

10911 Old St. Augustine Rd. Jacksonville, FL 32257

Grade 8 Summer Packet 2021

The assignments will be collected and graded by the subject teacher. The assignment is due Tuesday, 24 August 2021.

Summer Reading List

Books that connect to Language Arts/Reading:

1. The Book Thief by Markus Zusak
2. Five Feet Apart by Rachel Lippincott
3. The Crossover by Kwame Alexander
4. Refugee by Alan Gratz
5. Wonder by R.K. Palacio

Books that connect to U.S. History/Civics:

6. Attack of the Turtle by Drew Carlson (Revolutionary War)
7. Silent Thunder by Andrea Davis Pinkney (Civil War)
8. Fever 1793 by Laurie Halse Anderson (Early Modern America)
9. The Inquisitor's Tale by Adam Gidwitz (Pre-Enlightenment Europe)

Books that connect to Science/Biology:

10. The Martian by Andy Weir

You will be responsible for reading at least one of the above fiction novels. The choice must be a book that is NEW TO YOU. Upon completion of reading, you will design a creative project that will be turned in upon your return to school.

Photos of Past Projects for Inspiration:



Your project will need to include:

- **Description of Characterization**-Descriptions of main characters, including personality and physical traits, and any necessary comparisons/contrasts between characters, as well as images of each character.
- **Description of Setting**-Describe the main setting(s) of the story, include maps and drawings of setting.
- **Description of the Plot**-Include a story board or plot line diagram to highlight introduction, rising action, climax, and falling action, outcomes of the story.
- **Student Recommendations**-Rate the book from 1 star (worst) to 5 stars (best) and provide reasonable justification for your rating.
- **Creativity and Ingenuity in Design**-your project needs to show significant evidence of originality and inventiveness. The majority of (the context and many of the ideas must be fresh, original, inventive, and based on logical conclusions and accurate reading comprehension.

*** Each bullet point above will be worth 20% of the overall score***

Math

Returning RCSAM students complete the activities for the math you will be going into for 8th grade. You should see your seventh grade class listed next to it for example Pre-Algebra activities (for those that took 7th grade math).

Pre-Algebra Activities (For those who took 7th grade Math)

A.1 Factors

1. Which numbers are factors of 8? Circle all that apply.

9 4 1 8

2. Besides 9 and 1, what is one factor of 9?

3. Which numbers are factors of 10? Circle all that apply.

5 1 2 10

4. Which numbers are factors of 7? Circle all that apply.

7 4 6 1

A.5 Greatest Common Factor

5. What is the greatest common factor of 10 and 2?

6. What is the greatest common factor of 50 and 35?

7. What is the greatest common factor of 23 and 92?

8. What is the greatest common factor of 30, 76, and 66?

A.6 Least Common Multiple

9. What is the least common multiple of 12 and 10?

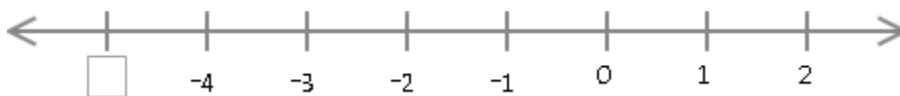
10. What is the least common multiple of 12 and 17?

11. What is the least common multiple of 11 and 25?

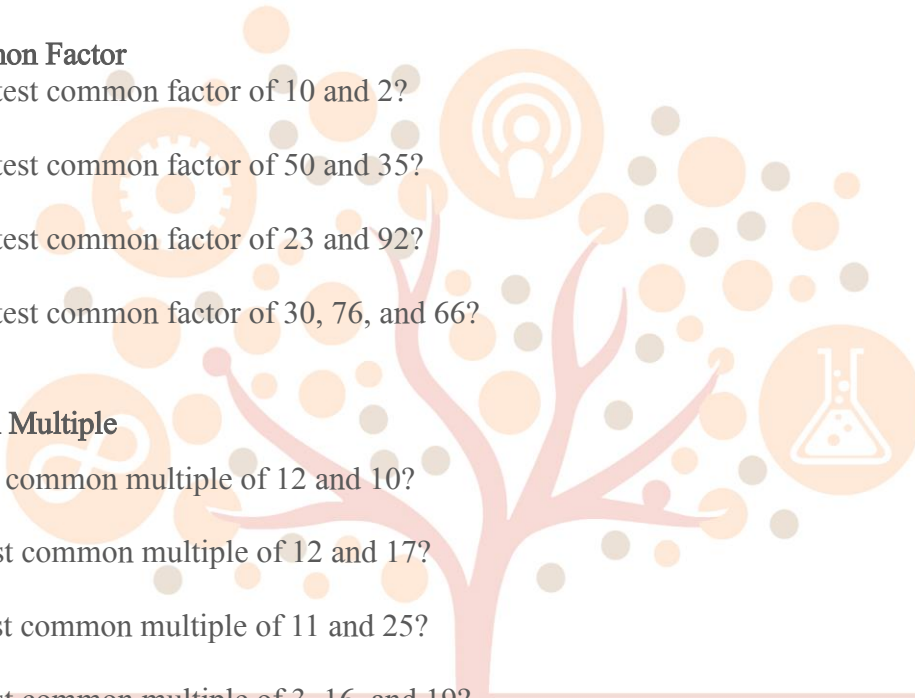
12. What is the least common multiple of 3, 16, and 19?

B.1 Integers on a Number Line

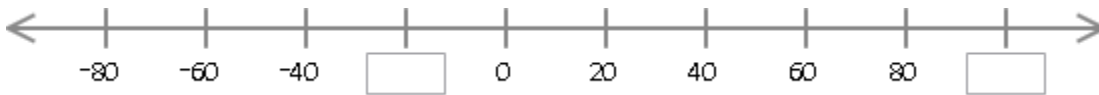
13. What is the missing number?



14. What are the missing numbers?



15. What are the missing numbers?



16. What are the missing numbers?



C.1 Integer Addition and Subtraction Rules

17. Is $77 + 59$ positive or negative?

18. Is $-345 + 5,143,005$ positive or negative?

19. Is $-88 - 7$ positive or negative?

20. Is $22,975 + -111,988$ positive or negative?

D.1 Write fractions in Lowest Terms

21.

Write $\frac{2}{7}$ in lowest terms

22.

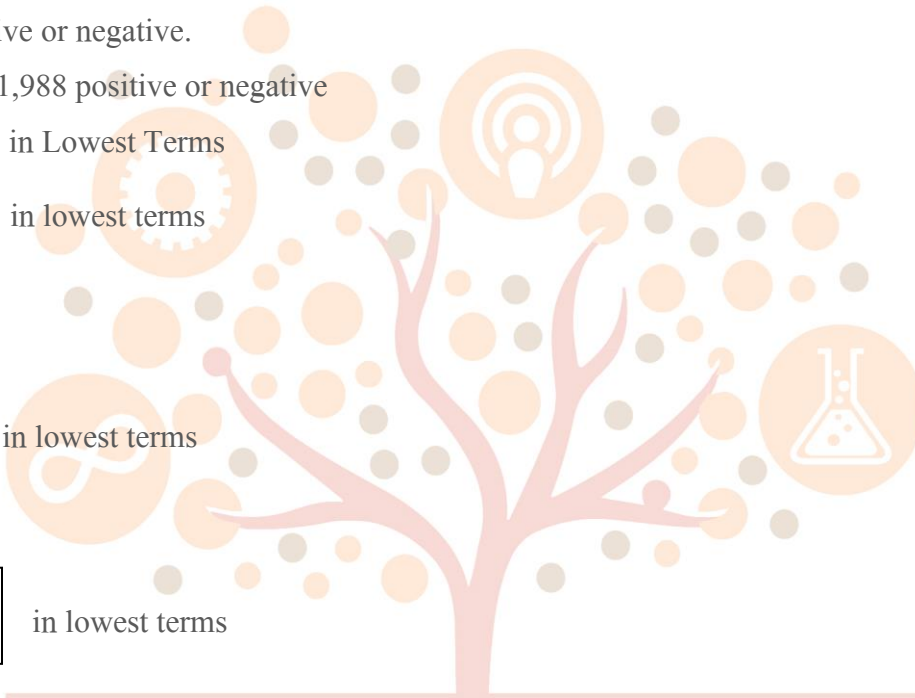
Write $\frac{2}{6}$ in lowest terms

23.

Write $\frac{9}{42}$ in lowest terms

24.

Write $\frac{100}{213}$ in lowest terms



F.1 Understanding Exponents

25. Write the expression using exponents.

$$15 * 28 * 28$$

26. Write the expression using exponents.

$$27 * 27 * 43 * 80 * 89$$

27. Write the expression using exponents.

$$81 * 86 * m * n * n$$

28. Write the expression using exponents.

$$n * n * n$$

G.1 Convert between Standard and Scientific Notation

29. How do you write 4.70×10^4 in standard form?

30. How do you write 69,000 in scientific notation?

31. How do you write 5.399×10^0 in standard form?

32. How do you write 0.0001489 in scientific notation?

H.1 Understanding Ratios

33. What is the ratio of squares to total shapes?



34. What is the ratio of total shapes to hexagons?



35. A car factory made 6 cars with a sunroof and 14 cars without a sunroof. What is the ratio of the number of cars without a sunroof to the total number of cars?

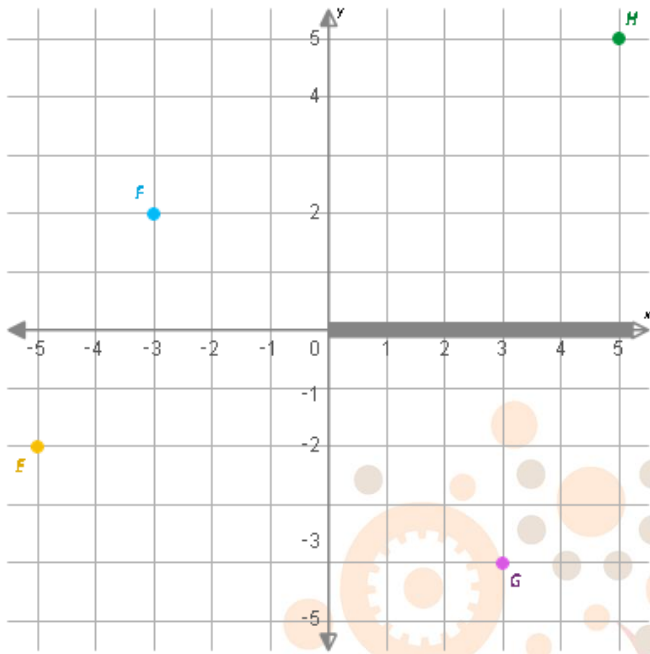
Write your answer as a fraction. Use a slash (/) to separate the numerator and denominator.

36. A donut shop made 49 donuts with frosting and 3 donuts without frosting. What is the ratio of the number of donuts with frosting to the number of donuts without frosting?

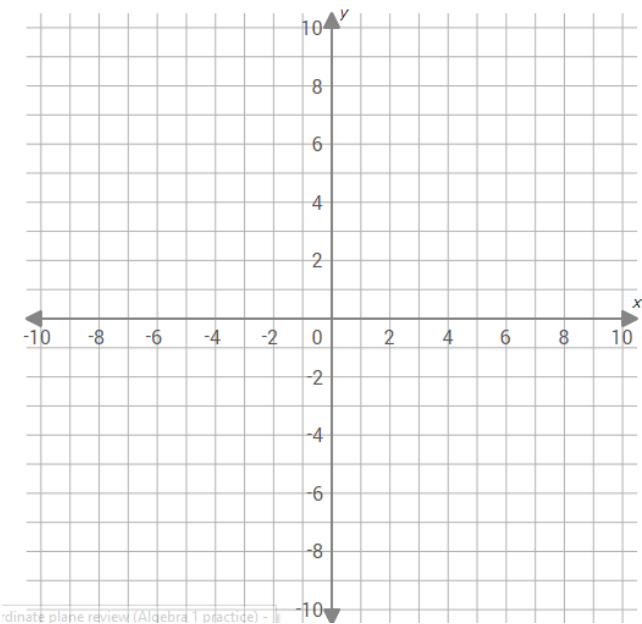
Algebra Activities (For those that took Pre-Algebra)

G.1 Coordinate Plane Review

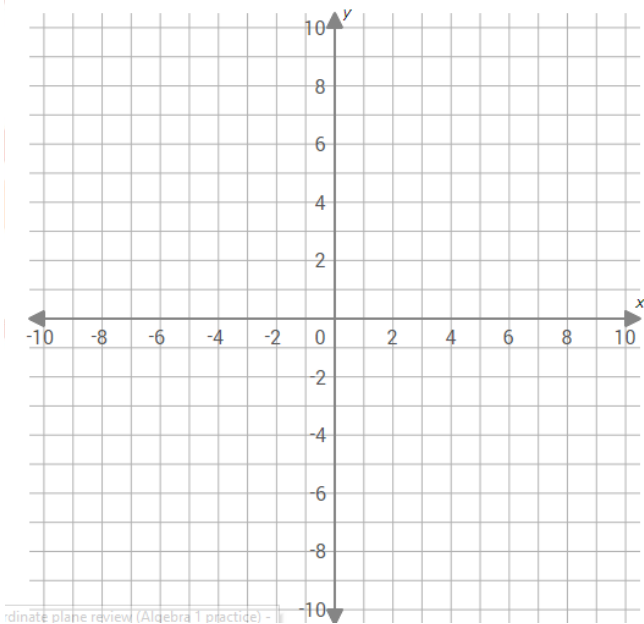
1. What are the coordinates of point H?



2. Graph the point (1, -5) on the coordinate plane.



3. Graph the points (-2, -5) and (-3.5, 4) on the coordinate plane.



J.3 Solve One-Step Linear Equations

4. Solve for v.

$$30 = -6v$$

5. Solve for v .

$$916 = v + 842$$

6. Solve for u .

$$u + -1 = 0.37$$

J.4 Solve Two-Step Linear Equations

7.

Solve for h .

$$\frac{h}{3} + 6 = 8$$

8.

Solve for w .

$$2w - -4 = 10$$

9.

Solve for z .

$$4 = 2(z - 5)$$

P.2 Arithmetic Sequences

10. Solve for u .

$$3u + 4 = 10$$

11. Solve for j .

$$3(j - 7) = 3$$

12. Solve for q .

$$3(q + 1) = 9$$

P.3 Geometric Sequences

13. What is the missing number in this sequence:

$$1, 3, 9, 27, 81, ?$$

14. What is the missing number in this sequence:

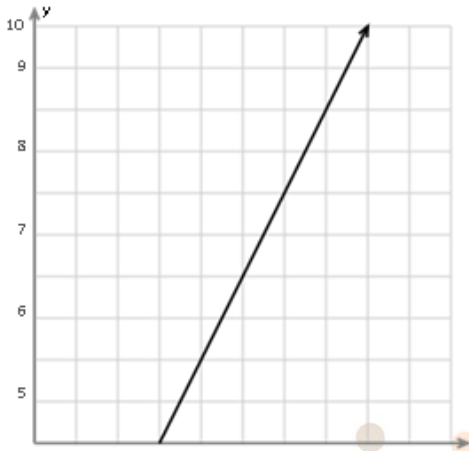
$$-3, -9, -27, -81, -243, ?$$



15. What is the missing number in this sequence:
5, 15, 45, ?, 405, 1,215

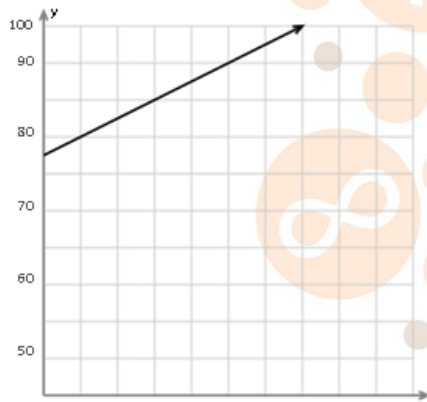
S.3 Find the Slope of a Graph

16. Look at this graph.



What is the slope? (Simplify your answer and write it as a proper fraction, improper fraction, or integer.)

17. Look at this graph.



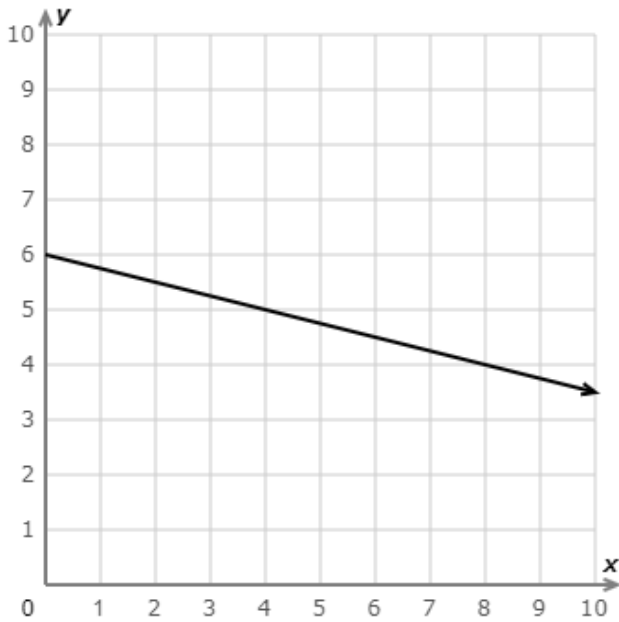
What is the slope? (Simplify your answer and write it as a proper fraction, improper fraction, or integer.)

S.4 Find the Slope from the Two Points

18. Find the slope of the line that passes through (2, 1) and (10, 10).
Simplify your answer and write it as a proper fraction, improper fraction, or integer.
19. Find the slope of the line that passes through (20, 40) and (54, 73).
Simplify your answer and write it as a proper fraction, improper fraction, or integer.
20. Find the slope of the line that passes through (1, 10) and (10, 3).
Simplify your answer and write it as a proper fraction, improper fraction, or integer.

S.8 Slope-Intercept Form: Write an Equation from A Graph

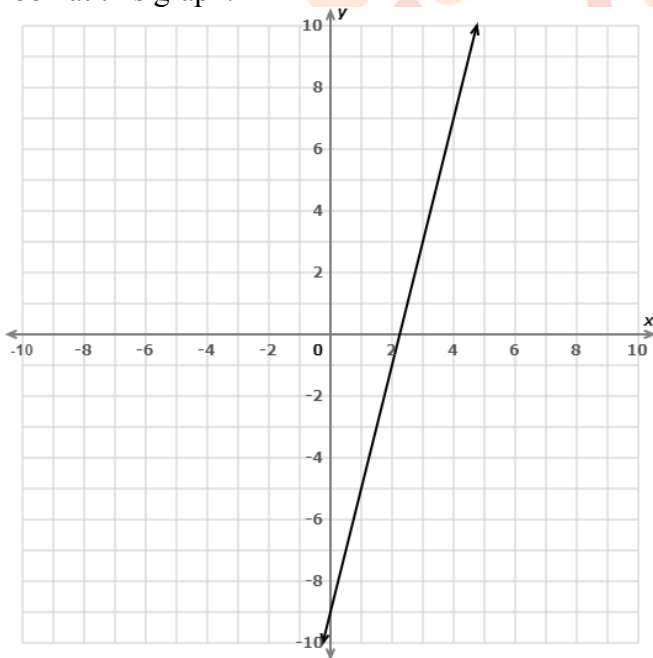
21. Look at this graph.



What is the equation of the line in slope-intercept form?

Write your answer using integers, proper fractions, and improper fractions in simplest form.

22. Look at this graph.



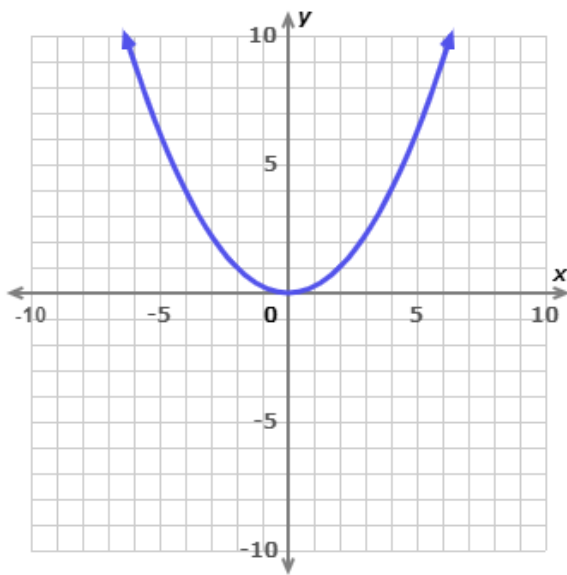
What is the equation of the line in slope-intercept form?

Write your answer using integers, proper fractions, and improper fractions in simplest form.

BB.1 Characteristics of Quadratic Functions: Graphs

23.

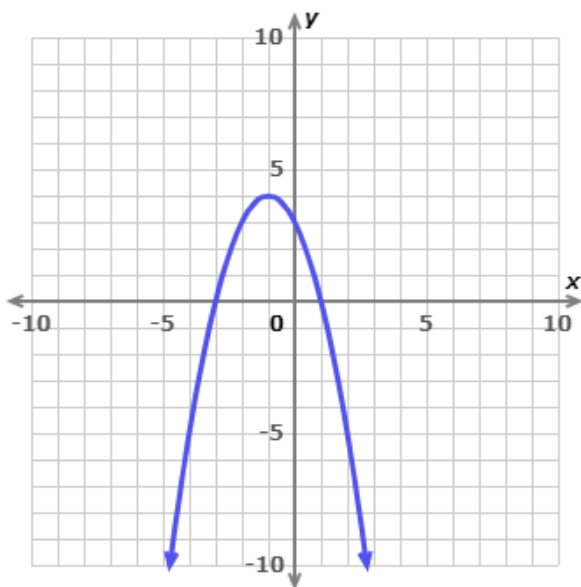
Look at this graph:



What is the y-intercept?

24.

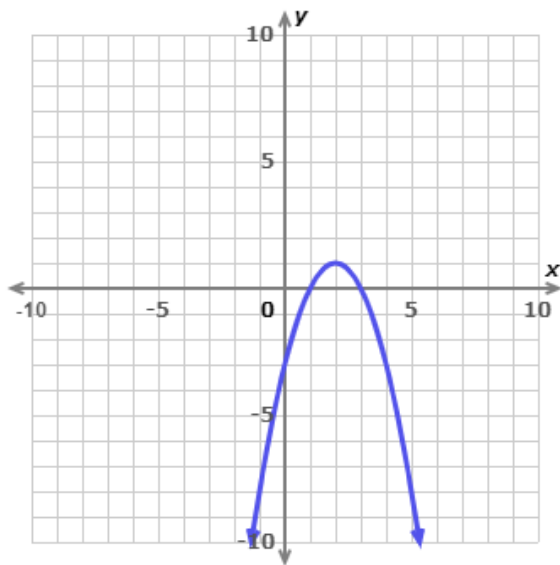
Look at this graph:



What is the equation of the axis of symmetry?

25.

Look at this graph:



What is the equation of the axis of symmetry?

BB.2 Characteristics of Quadratic Functions: Equations

26.

Find the equation of the axis of symmetry for the parabola $y = x^2 + 2x + \frac{15}{2}$.

Simplify any numbers and write them as proper fractions, improper fractions, or integers.

27.

Find the minimum value of the parabola $y = x^2 + \frac{11}{5}$.

Simplify your answer and write it as a proper fraction, improper fraction, or integer.

28.

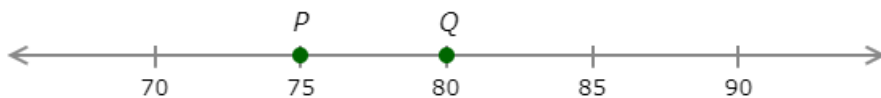
Find the minimum value of the parabola $y = x^2 + \frac{9}{2}$.

Simplify your answer and write it as a proper fraction, improper fraction, or integer.

Geometry Activities (For those that took Algebra I)

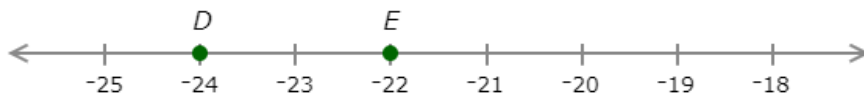
B.6 Perpendicular Bisector Theorem

What is the coordinate of the midpoint of \overline{PQ} ?



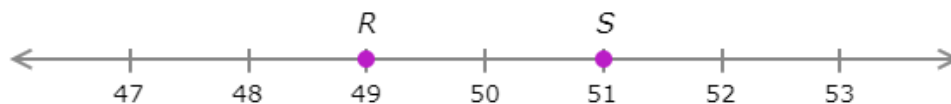
1. Write your answer as an integer or a decimal, or mixed number in simplest form.

What is the coordinate of the midpoint of \overline{DE} ?



2. Write your answer as an integer or a decimal, or mixed number in simplest form.

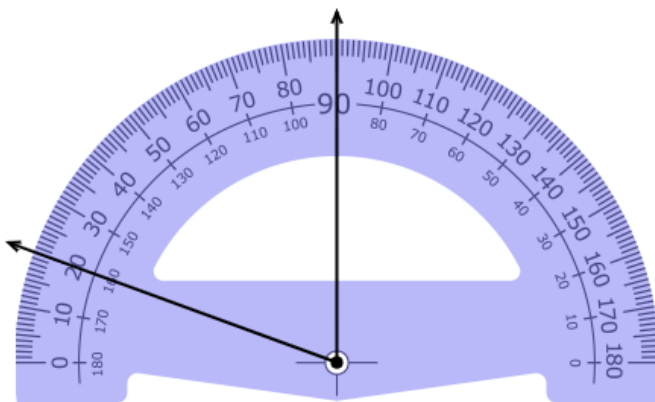
What is the coordinate of the midpoint of \overline{RS} ?



3. Write your answer as an integer or a decimal, or mixed number in simplest form.

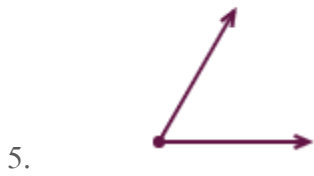
C.2 Angle Measures

What is the measurement of this angle?

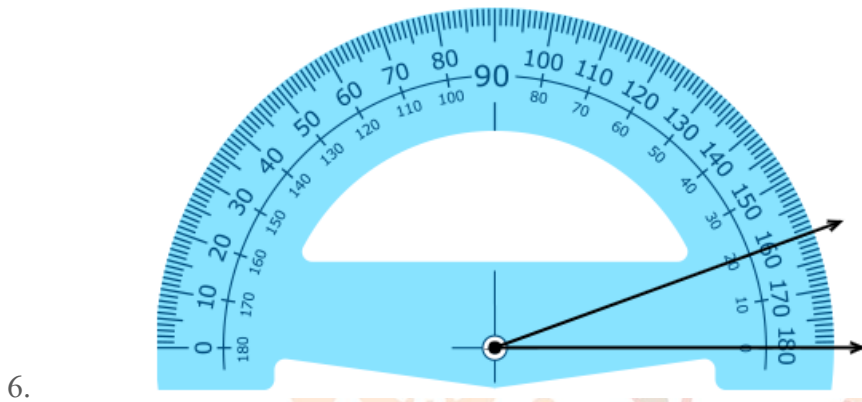


- 4.

Estimate the measure of this angle within 15° .



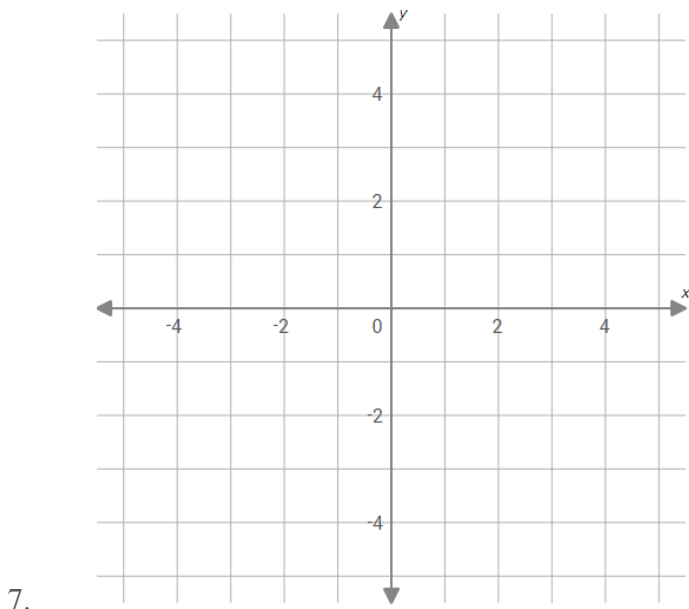
What is the measurement of this angle?



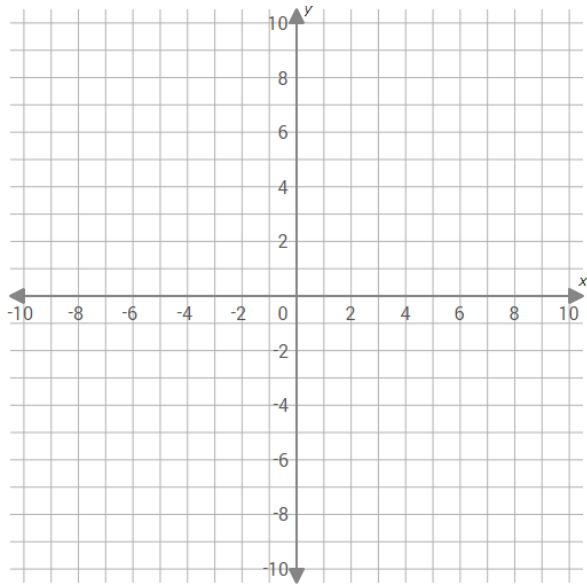
E.1 Coordinate Plane Review

Graph the points $(1.5, -4.5)$ and $(3.5, -1.5)$ on the coordinate plane.

Click to graph a point. Click the point again to delete it.

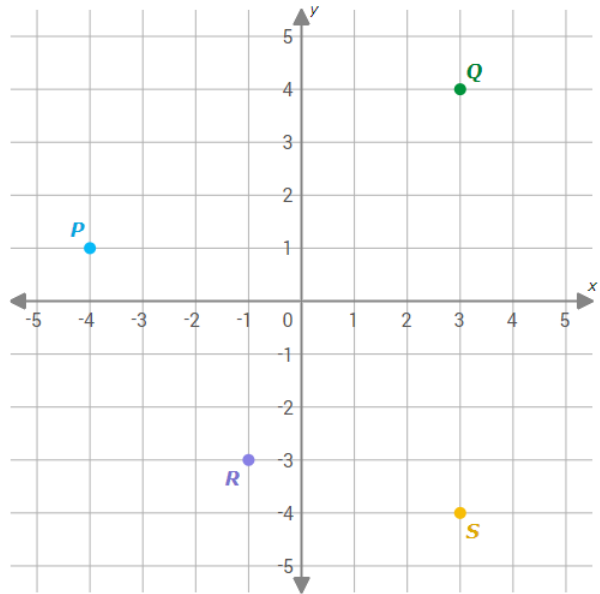


Graph the point $(6, -3)$ on the coordinate plane.



8.

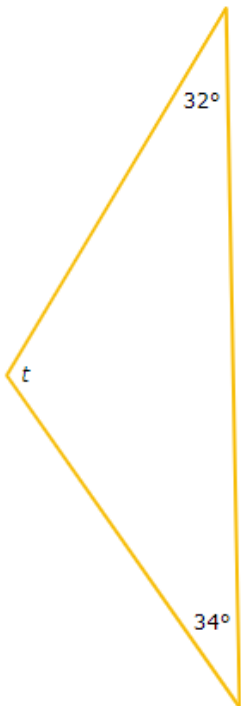
What are the coordinates of point P ?



9.

F.2 Triangle Angle-Sum Theorem

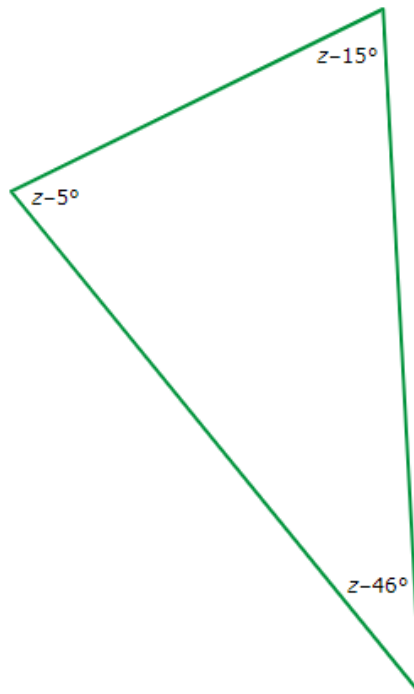
The diagram shows a triangle.



What is the value of t ?

10. $t = \boxed{}^\circ$

The diagram shows a triangle.

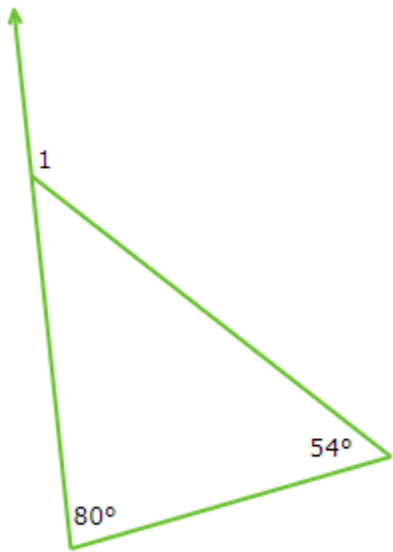


What is the value of z ?

11. $z = \boxed{}^\circ$

F.3 Exterior Angle Theorem

What is $m\angle 1$?



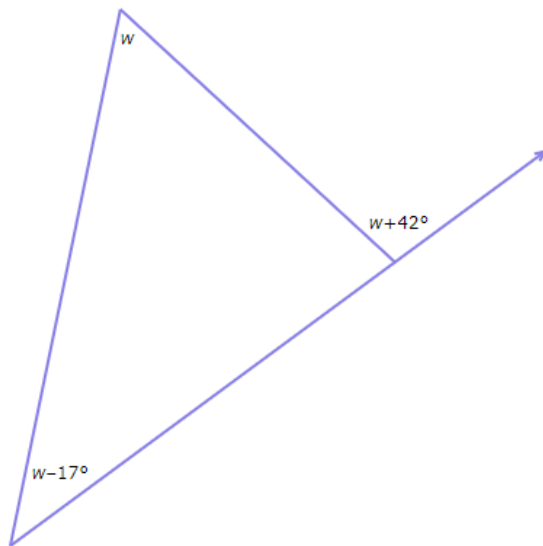
12. $m\angle 1 = \boxed{}^\circ$

What is $m\angle 1$?



13. $m\angle 1 = \boxed{}^\circ$

What is the value of w ?

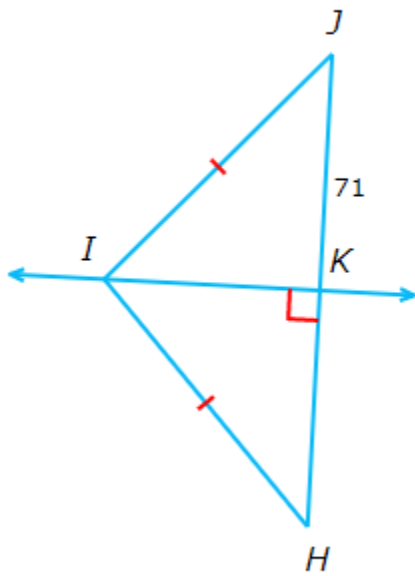


14. $w = \boxed{}^\circ$



M.2 Triangles and Bisectors

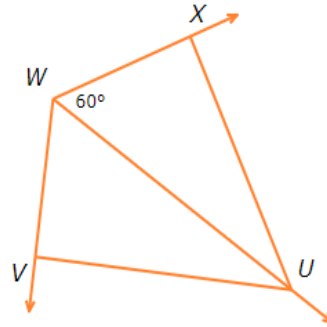
What is HJ ?



15.

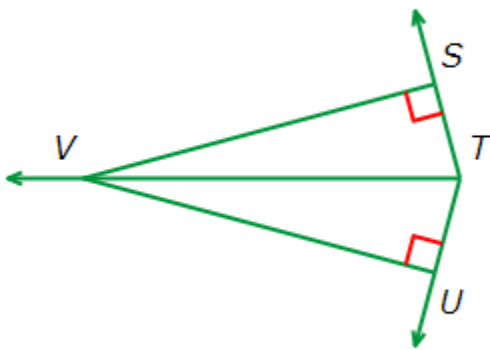
$HJ =$

Can you use the angle bisector theorem to solve for $m\angle UWV$?



16.

If $SV = UV = 4$, $m\angle STV = z + 60^\circ$, and $m\angle UTV = 5z$, what is the value of z ?



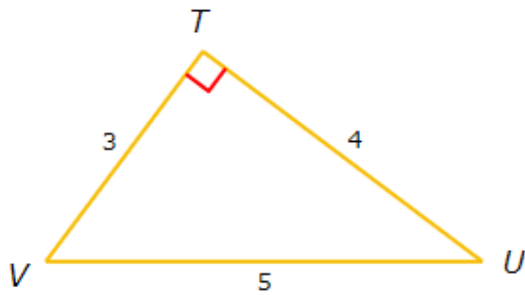
17.

$z =$ $^\circ$

R.1 Trigonometric Ratios: Sin, Cos, and Tan

18.

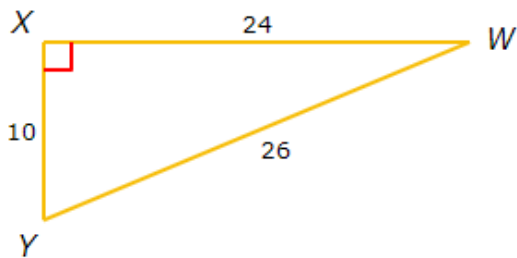
Find the tangent of $\angle V$.



Simplify your answer and write it as a proper fraction, improper fraction, or whole number.

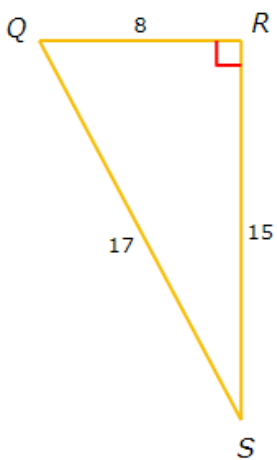
19.

Find the cosine of $\angle Y$.



Simplify your answer and write it as a proper fraction, improper fraction, or whole number.

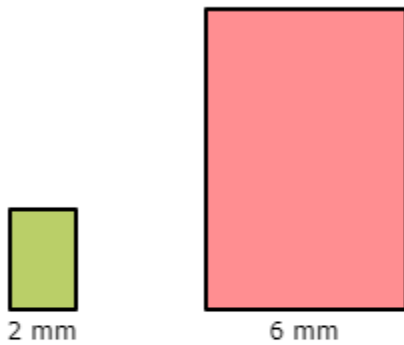
Find the cosine of $\angle Q$.



20. *Simplify your answer and write it as a proper fraction, improper fraction, or whole number.*

S.10 Area and Perimeter of Similar Figures

The figures below are similar. The labeled sides are corresponding.



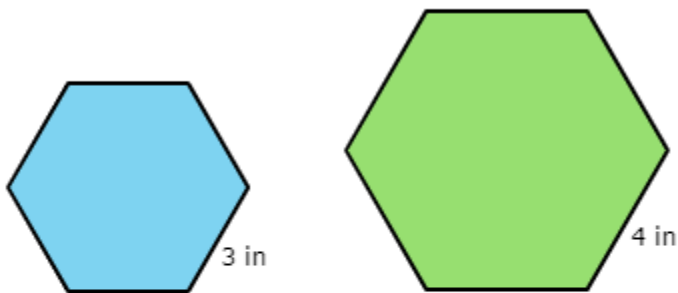
$$A_1 = 6 \text{ mm}^2$$

$$A_2 = ?$$

What is the area of the larger rectangle?

21. $A_2 =$ square millimeters

The figures below are similar. The labeled sides are corresponding.



$$P_1 = 18 \text{ in}$$

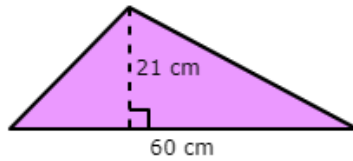
$$P_2 = ?$$

What is the perimeter of the larger hexagon?

22. $P_2 =$ inches

23.

Look at this triangle:



If the height is doubled and the base is tripled, then which of the following statements about its area will be true?

The ratio of the new area to the old area will be 4:1.

The ratio of the new area to the old area will be 6:1.

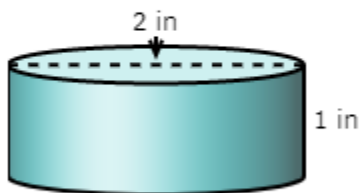
The ratio of the new area to the old area will be 12:1.

The ratio of the new area to the old area will be 5:1.

T.5 Volume of Prisms and Cylinders

What is the volume of this cylinder?

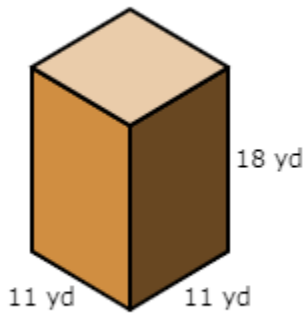
Use $\pi \approx 3.14$ and round your answer to the nearest hundredth.



24.

cubic inches

What is the volume?

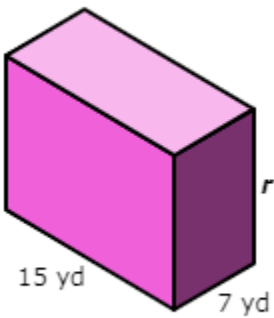


cubic yards

25.

26.

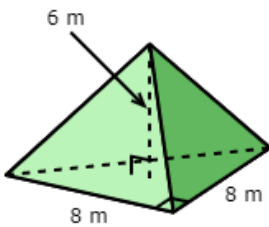
The volume of this rectangular prism is 1,260 cubic yards. What is the value of r ?



$r =$ yards

T. 6 Volume of Pyramids and Cones

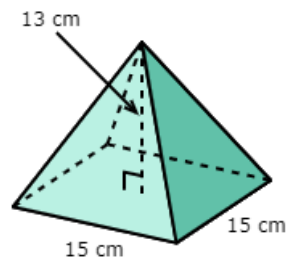
What is the volume of this triangular pyramid?



cubic meters

27.

What is the volume of this rectangular pyramid?

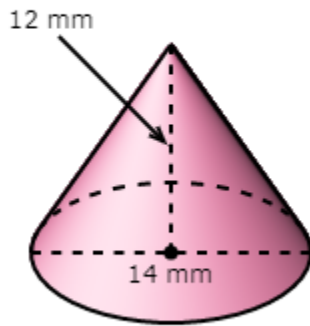


cubic centimeters

28.

What is the volume of this cone?

Use $\pi \approx 3.14$ and round your answer to the nearest hundredth.

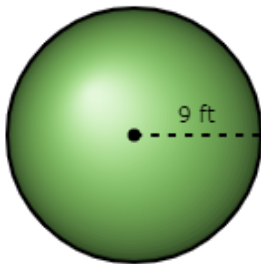


29. cubic millimeters

T.7 Volume of Spheres

What is the volume of this sphere?

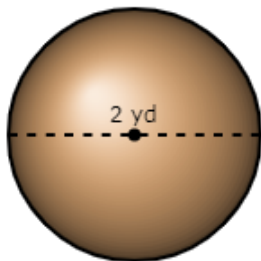
Use $\pi \approx 3.14$ and round your answer to the nearest hundredth.



30. cubic feet

What is the volume of this sphere?

Use $\pi \approx 3.14$ and round your answer to the nearest hundredth.



31. cubic yards

