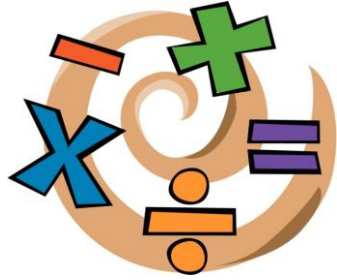


# Grade 9



# MATH JOURNAL

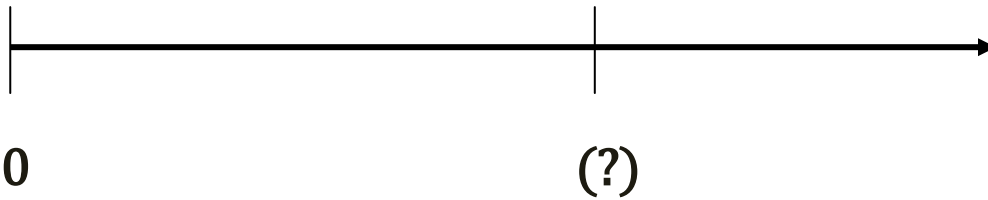
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5. /5
6. /4
7. /5
8. /2
9. /6

Name: \_\_\_\_\_

Class: \_\_\_\_\_

Teacher: Mrs. Bennett/Mr. Sheppard

## Types of numbers



Pick a number for (?) which would be a(n):

- A) Natural Number \_\_\_\_\_ Why? \_\_\_\_\_
- B) Whole Number \_\_\_\_\_ Why? \_\_\_\_\_
- C) Integer \_\_\_\_\_ Why? \_\_\_\_\_
- D) Rational Number \_\_\_\_\_ Why? \_\_\_\_\_
- E) Irrational number \_\_\_\_\_ Why? \_\_\_\_\_

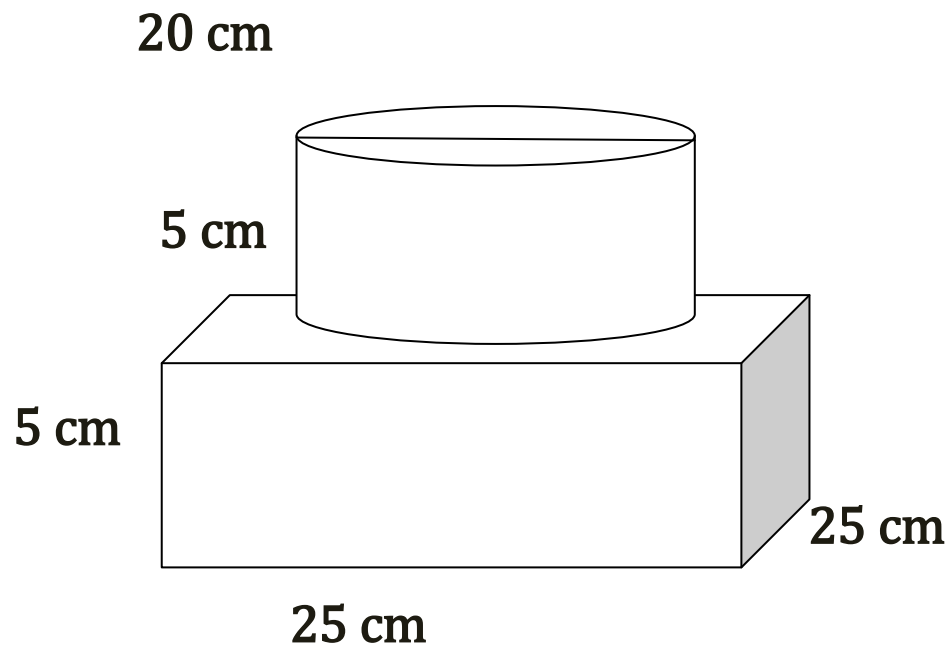
## UNIT1: Square Roots and Surface Area

1. Using an example/model, EXPLAIN how each of the following CAN BE a PERFECT SQUARE.

- A) a whole number
- B) a fraction
- C) a decimal

2. How would you use estimation to show that 0.7 and 0.007 are NOT reasonable values for  $\frac{\quad}{\quad}$  ?

3. Alfred made a two layer cake. He used strawberry jam between the layers instead of icing. He wants icing just used for the outside of the cake. How would you describe the surface area that needs icing?



## Unit 2: Powers and Exponents

4. Does  $2^3 = 3^2$ ? Explain your answer.

5. Does  $2^4 = 4^2$ ? Explain your answer.

6. Your buddy missed class and went to [jbennett.yolasite.com](http://jbennett.yolasite.com) to find what she missed. While talking on the phone, she asked you how to solve  $2^3 = 8$ . In words, how would you explain it to her.

### **Unit 3: Rational Numbers**

**7. How would you identify ALL the INTEGERS between — and —. LIST them.**

**8. Why is it important for the rules of order of operations (BEDMAS) for rationals be the same as the order of operation rules for integers?**

## UNIT 4: LINEAR RELATIONS

**9. How are vertical lines and their equations:**

**A) similar?**

**B) different?**

**10. How are horizontal lines and their equations:**

**A) similar?**

**B) different?**

**11. How are oblique lines and their equations:**

**A) similar?**

**B) different?**

## Unit 5: POLYNOMIALS

12. Stephani rearranged the polynomial

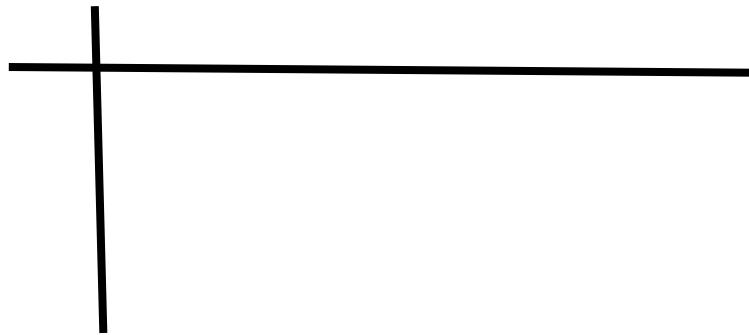
as                      Using models/diagrams/pictures,  
show if she is correct. (SHADED is POSITIVE/ CLEAR is  
NEGATIVE)

13. Tim needs help understanding subtraction with polynomials. Here is his workings:

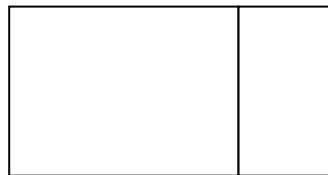
How would you explain what he is doing wrong and help him fix it.

14. Show TWO methods for modelling and its solution. (SHADED is POSITIVE/CLEAR is NEGATIVE.)

METHOD 1



METHOD 2: AREA MODEL





15. Explain how you would fix this simplification:

$= 15x - x$     WHAT is wrong? \_\_\_\_\_

$= 14x$     \_\_\_\_\_

Your solution completed correctly:

=

=

16. Explain how you would fix this simplification:

\_\_\_\_\_    WHAT is wrong? \_\_\_\_\_

= \_\_\_\_\_    \_\_\_\_\_

= \_\_\_\_\_

= \_\_\_\_\_

Your solution completed correctly:

\_\_\_\_\_

=

## Unit 6: Linear Equations and Inequalities

17. Two students answered the following on their test:

Daphne	Helen
<p style="text-align: center;"><math>\frac{1}{2} - \frac{1}{3}</math></p> <p style="text-align: center;">— —</p> <p style="text-align: center;">—</p> <p>MARK: ____/4</p>	<p style="text-align: center;"><math>\frac{1}{2} - \frac{1}{3}</math></p> <p style="text-align: center;">— —</p> <p>MARK: ____/4</p>

If you were a teacher, how many marks out of 4 would you give each student. Give reasons to justify your marks given and identify where the mistakes were made.

18. Eugene and Norman had to write an inequality to represent the numbers that are not more than eight.

Here's their solutions:

Eugene:

Norman:

Their teacher said BOTH were correct.

Explain how this is so.

19. Explain why \_\_\_\_\_ and \_\_\_\_\_ do NOT have any solutions in common. ( Might try to modify one equality to see how many solutions are in common)

**20. Wayne and Nancy are discussing the inequality:**

**Wayne said, “The solution is 6 because when I substitute 6 for  $x$ , the statement is TRUE.”**

**Nancy said, “ I agree that 6 is a solution, BUT it is NOT the whole solution.”**

**Explain what she meant.**

### **UNIT 7: Similarity and Transformations**

**21. A billboard picture is 8m wide and 12 m long. How would you scale down this billboard to be 1m wide?**

**22. One triangle has two  $50^\circ$  angles. Another triangle has a  $50^\circ$  angle and an  $80^\circ$  angle. Could these triangles be similar? Explain your thinking. (Diagram might help)**

**23. “Any rectangle has TWO lines of symmetry”**

**Using diagrams, justify if you AGREE or DISAGREE with this statement.**

**24. How do the number of lines of symmetry of a regular polygon relate to the number of sides the polygon has? Explain your idea.**

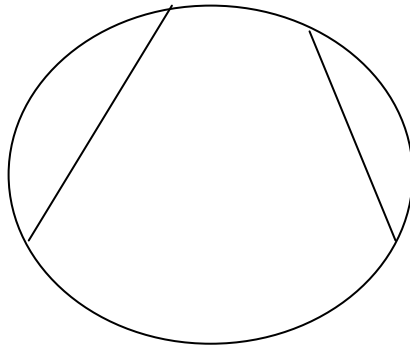
**25. Some regular shapes (like an equilateral triangle, a square, or regular hexagon) appear to show line symmetry when they are translated in one direction.**

**Is this TRUE or FALSE? \_\_\_\_\_**

**Give examples to support your choice.**

## UNIT 8: CIRCLE GEOMETRY

26. How can you find the center of a circle is given two chords in the circle and these cords are not parallel?



27. After an outage, Mack helps her dad by shining a flashlight beam on his work. Her flashlight projects light through an angle of  $15^\circ$ , while her father's flashlight projects light through an angle of  $30^\circ$ . Explain, using a diagram, where Mack could stand so that her flashlight will illuminate the SAME AREA as her dad's flashlight.

## **Unit 9: Probability and Statistics**

**28. Where do you find probability used in print and electronic media? (Give five examples)**

**(i)** \_\_\_\_\_

**(ii)** \_\_\_\_\_

**(iii)** \_\_\_\_\_

**(iv)** \_\_\_\_\_

**(v)** \_\_\_\_\_

**29. Give an example where probability was used for your community to make an important decision for the town. Tell how probability was involved.**

**30 . Give an example where a medical organization might make decisions based on probability. Tell how probability was involved.**



31. When you flip a coin, Lunnete feels theoretically she has 1 in 2 chance of getting HEADS. Jean flipped her coin and got HEADS 40 times of the 50 flips she made. Janice says, "I will get more heads because this is my lucky coin."

Identify whose view is:

SUBJECTIVE PROBABILITY \_\_\_\_\_

EXPERIMENTAL PROBABILITY \_\_\_\_\_

THEORETICAL PROBABILITY \_\_\_\_\_

How do each of these influence decision making involving probability?

32. Identify three things you like about Math.

(Do not leave this blank)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(iii) \_\_\_\_\_



33. What Math mark do you expect to receive in June? \_\_\_\_\_

Why? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_