Math I   Name: _____

Unit 1: Equations and Inequalities

Day	Date		Topic	Grade (Teacher fills in)
	A DAY	**B Day**		
1	Monday Aug. 29	Tuesday Aug. 30	General Class Procedures and Rules **PRACTICE**: #1-10	
2	Wednesday Aug. 31	Thursday Sept. 1	Order of Operations, Evaluating Expressions, and Writing Expressions **PRACTICE:** #11-15	
3	Friday Sept. 2	Tuesday Sept. 6	One-Step Equations, Two-Step Equations, and Word Problems **PRACTICE:** #16-20	
4	Wednesday Sept. 7	Thursday Sept. 8	Variables on Both Sides **PRACTICE**: #21-25	
5	Friday Sept. 9 **Early Rel.**	Monday Sept. 12	Consecutive Integers **PRACTICE**: #26-30	
6	Tuesday Sept. 13	Wednesday Sept. 14	Literal Equations **PRACTICE:** #31-35	
7	Thursday Sept. 15	Friday Sept. 16	Inequalities/Graphing on a Number Line **PRACTICE:** #36-40	
8	Monday Sept. 19	Tuesday Sept. 20	Inequalities with Word Problems **PRACTICE**: 41-45	
9	Wednesday Sept. 21	Thursday Sept. 22	Review Day	
10	Friday Sep. 23	Monday Sep. 26	**TEST TODAY**	(This sheet will be collected today!)

"Just a darn minute! — Yesterday you said that X equals two!"

Unit 1 Skills & Standards

Quantities (not assessed separately)

N-Q.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

N-Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

Seeing Structure in Expressions (not assessed separately)

A-SSE.1 Interpret expressions that represent a quantity in terms of its context.
   a. Interpret parts of an expression, such as terms, factors, and coefficients.

SKILL 1: I can SOLVE EQUATIONS and INEQUALITIES and EXPLAIN EACH STEP.

A-REI.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

A-REI.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

SKILL 2: I can CREATE EQUATIONS and INEQUALITIES.

A-CED.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear ~~and quadratic functions, and simple rational and exponential~~ functions.

UNIT 1 PRACTICE
DAY 1 Practice (Pre-Course Skill) (Non-Calculator)

Integers: Simplify each expression

1. $-4 + 6 =$ _____

2. $-7 \cdot -4 =$ _____

3. $6 - (-2) =$ _____

4. $-72/12 =$ _____

5. $-3 \cdot 11 =$ _____

6. $-7 + (-18) =$ _____

7. $13 - (-12) =$ _____

8. $15 \cdot -3 =$ _____

9. $-121/-11 =$ _____

10. $75/-3 =$ _____

DAY 2 Practice (Skill 1) (Non-Calculator)

Order of Operations: Simplify each expression using order of operations

11. $24 \div 3 \cdot 2 - 3^2$ _____

12. $\dfrac{4 \cdot 3^2 - 3 \cdot 2}{3 \cdot 5}$ _____

13. $15 - 12 \div 3 \cdot 2 + 4$ _____

Evaluating Expressions: Evaluate each expression using the given values.

14. Let x = 2   y = -3   z = 5

   a) xz – 4 _____

   b) x – y _____

   c) $2y + x^2$ _____

Writing Algebraic Expressions: Write each phrase as an algebraic expression.

15. Use the variable x for each expression

   a) A number decreased by 8 _____

   b) 3 less than 5 times a number _____

   c) The quotient of a number and 7 subtracted from 8 _____

   d) 6 more than twice a number _____

DAY 3 Practice (Skill 1)

Solving Equations: 3 PART PROBLEM: SOLVE, REASON, AND CHECK! Solve each equation while writing a justification for each step (such as "Distribute", "Combine like Terms", etc.) and check your answer.

16. $-3x + 7 = -8$

17. $\frac{x}{5} - 6 = 1$

18. If $2x + 4 = -6$, what does $2 - 3x$ equal? (*hint: solve for x in the first equation first!)*

Writing and Simplifying Algebraic Equations: Write each phrase as an algebraic equation and solve.

19. A number less than eight is equal to 14. What is the number?

20. A number multiplied by 5 and then 3 is subtracted from the product. The result of this is 12. Find the number.

Solving Equations: 3 PART PROBLEM: SOLVE, REASON, AND CHECK! Solve each equation while writing a justification for each step (such as "Distribute", "Combine like Terms", etc.) and check your answer.

21. $\dfrac{5-2x}{6} = 11$

22. $6q - 1 = -q + 20$

23. $4x + 2.5 = -28.4 - 2.2x$

24. $-2(-w + 11) = -13 + 2w - 9$

Creating Equations: Define a variable, write an equation and SOLVE.

25. Suzanne is going to rent a car while she is out of town. One car rental company offers a flat rate of $35 per day plus $0.10 per mile. Another car rental company offers the same car for $25 per day plus $0.25 per mile. She will need the car for 5 days. How many miles would she need to drive for the first rental company to be the better deal?

Consecutive Integers: Define a variable, write an equation and SOLVE.

26. Find two consecutive integers whose sum is 45.

27. Find three consecutive integers whose sum is 72. What is the smallest integer?

28. Given four consecutive even integers that the sum is 60, what is the largest integer?

29. Find two consecutive odd integers whose sum is -88.

30. Find two consecutive even integers such that the sum of the larger and twice the smaller is 62.

DAY 6 Practice (Skill 1)

Literal Equations: Solve each problem for the variable stated.

31. The members of the senior class are planning a dance. They use the equation $r = pn$ to determine the total receipts. What is n expressed in terms of r and p?

32. If the formula for the perimeter of a rectangle is $P = 2L + 2W$ where P is perimeter, L is length, and w is width. Find the formula the expresses width, W, in terms of P and L.

33. The slope-intercept form of an equation is $y = mx + b$. Put the following in slope intercept equation – in other words, solve for the variable y:

     a.) $3x - 2y = 10$ b.) $\frac{1}{2}y + 5x = 10$

34. **Pythagorean Theorem.** The Greek mathematician, Pythagoras, found that in any right-angled triangle, the hypotenuse (the side opposite the right angle) is equal to the sum of the two legs squared. The formula is often written
$$a^2 + b^2 = c^2$$ where a and b are the legs and c is the hypotenuse.

Hypotenuse C
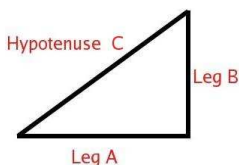
Leg B

Leg A   Solve the Pythagorean Theorem for leg a.

35. Using your answer in question 34, evaluate the formula using leg $b = 6$ cm and the hypotenuse $c = 10$ cm, what will leg a equal in centimeters?

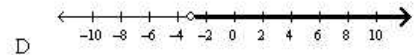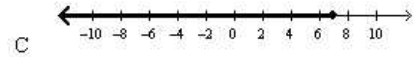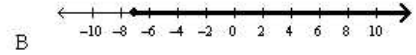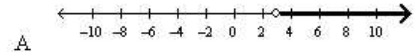## Solving Inequalities: (*Don't forget to flip the sign when appropriate!*)

Solve each inequality. Match the solution to the graph.

_____ 36. $-8 \geq x - 15$ _____ 37. $4x + 3 < 5x$

A   (number line from −10 to 10)

B   (number line from −10 to 10)

C   (number line from −10 to 10)

_____ 38. $8x > 7x - 3$ _____ 39. $x - 2 \geq -9$

D   (number line from −10 to 10)

Solve the inequality. Graph your solution on a number line.

40. $2p + 5 \geq 3p - 10$

(blank number line)

DAY 8 Practice (Skill 1 and Skill 2)

Solving Inequalities: (*Don't forget to flip the sign when appropriate!*)

Define a variable. Set up an inequality and solve.

41. 5 less than a number y is no less than 20. Find the possible solutions.

42. Three times a number increased by 8 is no more than the number decreased by 4. Find the possible values for the number.

43. Six more than two times a number is below the number increased by twenty. Find the possible numbers that satisfy this condition.

44. The low temperatures for the previous two days were 62° and 58°. What would the temperature need to be for the third day such that the average daily temperature is at least 64°.

45. A carpet cleaner charges $59 for the first room and $30 for each additional room. A customer does not what to spend more than $125 for having the carpets in his house cleaned. Solve the inequality and explain why the solution is not realistic for this situation. How Many rooms can the customer actually have cleaned, and how much will it cost?