

Topic 18: Equations  
~*Super Challenge*~  
Enrichment Packet

Due Monday

NAME: \_\_\_\_\_

## Variable and Verbal Expressions

**Write each as an algebraic expression.**

- 1) the difference of 10 and 5
- 2) the quotient of 14 and 7
- 3) u decreased by 17
- 4) half of 14
- 5) x increased by 6
- 6) the product of x and 7
- 7) the sum of q and 8
- 8) 6 squared
- 9) twice q
- 10) the product of 8 and 12
- 11) the quotient of 18 and n
- 12) n cubed

**Write each as a verbal expression.**

- 13)  $\frac{x}{2}$
- 14)  $a + 9$
- 15)  $19 - 3$
- 16)  $5n$
- 17)  $q^2$
- 18)  $\frac{40}{5}$
- 19)  $\frac{a}{8}$
- 20)  $x + 8$
- 21)  $n - 14$
- 22)  $2^2$
- 23)  $\frac{60}{5}$
- 24)  $n \cdot 6$

**Evaluate each expression.**

- 25) 5 squared
- 26) the product of 8 and 10
- 27) 20 decreased by 17
- 28) the quotient of 96 and 8
- 29) twice 6
- 30) 10 less than 17
- 31) 9 times 5
- 32) 10 increased by 8
- 33) 7 squared
- 34) the product of 4 and 5

## One-Step Equations

**Solve each equation.**

1)  $26 = 8 + v$

2)  $3 + p = 8$

3)  $15 + b = 23$

4)  $-15 + n = -9$

5)  $m + 4 = -12$

6)  $x - 7 = 13$

7)  $m - 9 = -13$

8)  $p - 6 = -5$

9)  $v - 15 = -27$

10)  $n + 16 = 9$

11)  $-104 = 8x$

12)  $14b = -56$

13)  $-6 = \frac{b}{18}$

14)  $10n = 40$

15)  $\frac{v}{8} = 2$

16)  $16 = \frac{k}{11}$

17)  $-15x = 0$

18)  $-17x = -204$

19)  $21 = -7n$

20)  $\frac{m}{4} = -13$

21)  $-126 = 14k$

22)  $-143 = -11x$

23)  $-16 + x = -15$

24)  $-5 = \frac{a}{18}$

25)  $-17 = x - 15$

26)  $n - 8 = -10$

27)  $\frac{v}{7} = 8$

28)  $a + 11 = 20$

29)  $-7 + m = 8$

30)  $18 + m = 8$

## Two-Step Equations

**Solve each equation.**

1)  $6 = \frac{a}{4} + 2$

2)  $-6 + \frac{x}{4} = -5$

3)  $9x - 7 = -7$

4)  $0 = 4 + \frac{n}{5}$

5)  $-4 = \frac{r}{20} - 5$

6)  $-1 = \frac{5+x}{6}$

7)  $\frac{v+9}{3} = 8$

8)  $2(n+5) = -2$

9)  $-9x + 1 = -80$

10)  $-6 = \frac{n}{2} - 10$

11)  $-2 = 2 + \frac{v}{4}$

12)  $144 = -12(x+5)$

13)  $-15 = -4m + 5$

14)  $10 - 6v = -104$

15)  $8n + 7 = 31$

16)  $-9x - 13 = -103$

17)  $\frac{n+5}{-16} = -1$

18)  $-10 = -10 + 7m$

19)  $-10 = 10(k-9)$

20)  $\frac{m}{9} - 1 = -2$

21)  $9 + 9n = 9$

22)  $7(9+k) = 84$

23)  $8 + \frac{b}{-4} = 5$

24)  $-243 = -9(10+x)$

1. A large box contains 18 small boxes and each small box contains 25 chocolate bars. How many chocolate bars are in the large box?
2. It takes John 25 minutes to walk to the car park and 45 to drive to work. At what time should he get out of the house in order to get to work at 9:00 a.m.?
3. Kim can walk 4 kilometers in one hour. How long does it take Kim to walk 18 kilometers?
4. A factory produced 2300 TV sets in its first year of production. 4500 sets were produced in its second year and 500 more sets were produced in its third year than in its second year. How many TV sets were produced in three years?
5. Linda bought 3 notebooks at \$1.20 each; a box of pencils at \$1.50 and a box of pens at \$1.70. How much did Linda spend?
6. Tom and Bob have a total of 49 toys. If Bob have 5 more toys than Tom, how many toys does each one have?

## Multi-Step Equations

Solve each equation.

1)  $-20 = -4x - 6x$

2)  $6 = 1 - 2n + 5$

3)  $8x - 2 = -9 + 7x$

4)  $a + 5 = -5a + 5$

5)  $4m - 4 = 4m$

6)  $p - 1 = 5p + 3p - 8$

7)  $5p - 14 = 8p + 4$

8)  $p - 4 = -9 + p$

9)  $-8 = -(x + 4)$

10)  $12 = -4(-6x - 3)$

11)  $14 = -(p - 8)$

12)  $-(7 - 4x) = 9$

13)  $-18 - 6k = 6(1 + 3k)$

14)  $5n + 34 = -2(1 - 7n)$

15)  $2(4x - 3) - 8 = 4 + 2x$

16)  $3n - 5 = -8(6 + 5n)$

17)  $-(1 + 7x) - 6(-7 - x) = 36$

18)  $-3(4x + 3) + 4(6x + 1) = 43$

19)  $24a - 22 = -4(1 - 6a)$

20)  $-5(1 - 5x) + 5(-8x - 2) = -4x - 8x$

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

Score: \_\_\_\_\_

**Solve for the Unknown**

$$x + 3 < 4$$

$$7m \leq -63$$

$$\frac{x}{12} > -7$$

$$-15y < -5$$

$$8 - n \leq -2$$

$$\frac{n}{9} > 8$$

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

Score: \_\_\_\_\_

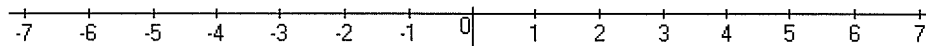
**Solve and Graph**

Work Space

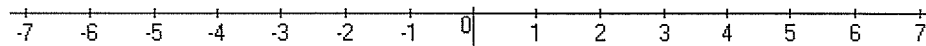
1)  $x - 3 < -2$



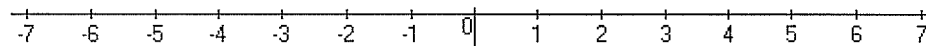
2)  $\frac{x}{5} \geq -1$



3)  $2 \leq x - 4$



4)  $-7x > -28$





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

Score: \_\_\_\_\_

**Solve – Two Step Inequalities**

$$4x + 8 < 20$$

Answer:

$$\frac{x - 6}{3} \geq -8$$

Answer:

$$8 - 11x \leq -3$$

Answer:

$$3(x - 2) > 21$$

Answer:

$$-\frac{x}{5} \geq x - 1$$

Answer:

$$3x + 5 < 2x - 1$$

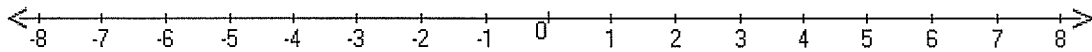
Answer:

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

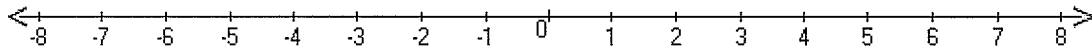
Score: \_\_\_\_\_

**Solve and Graph – Two Step Inequalities**

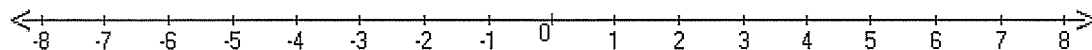
$$-5 + 4x > 2x - 1$$



$$\frac{x}{5} - 5 \leq -4$$



$$6(3x + 5) \geq 30$$

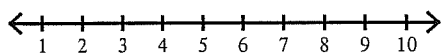


7. John can eat a quarter of a pizza in one minute. How long does it take John to eat one pizza and a half?
  
8. John can eat a sixth of a pizza in two minutes. It takes 3 minutes for Billy to eat one quarter of the same pizza. If John and Billy start eating one pizza each, who will finish first?
  
9. John read the quarter of the time that Tom read. Tom read only two-fifth of the time that Sasha read. Sasha read twice as long as Mike. If Mike read 5 hours, how long did John read?
  
10. Jim, Carla and Tomy are members of the same family. Carla is 5 years older than Jim. Tomy is 6 years older than Carla. The sum of their three ages is 31 years. How old is each one them?
  
11. Mel had \$35 and withdraw some more money from his bank account. He bought a pair of trousers at \$34.00, two shirts at \$16.00 each and 2 pairs of shoes at \$24.00 each. After the shopping, he had \$32.00 left. How much money did Mel withdraw from the bank?
  
12. How many minutes are in one week?
  
13. A painter charges \$ 225 for materials and \$ 35 per hour for labour. The total cost of painting an office is \$ 330. How many hours did it take the painter to paint the office?

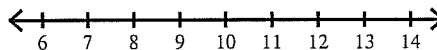
## Two-Step Inequalities

Solve each inequality and graph its solution.

1)  $-4 - 5v < -29$



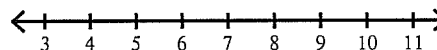
2)  $-2 + \frac{r}{9} > -1$



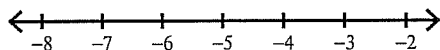
3)  $-1 + 4x \leq 31$



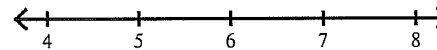
4)  $-3 + 2b < 13$



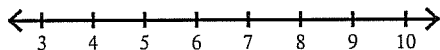
5)  $\frac{m}{6} - 5 \geq -6$



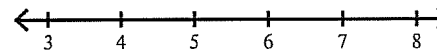
6)  $5 + \frac{n}{2} > 8$



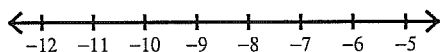
7)  $3n - 3 > 12$



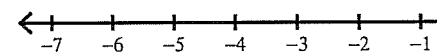
8)  $-2(x + 3) > -16$



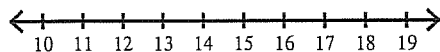
9)  $-40 < 5 + 5x$



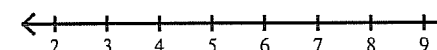
10)  $-6 > \frac{m}{2} - 4$



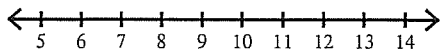
11)  $9(x + 7) \geq 198$



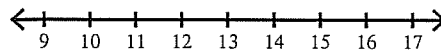
12)  $\frac{p}{2} + 7 \leq 10$



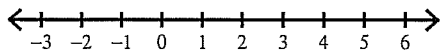
$$13) 36 \geq 6(-4 + a)$$



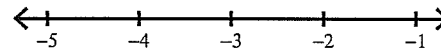
$$14) -52 < 8 - 5k$$



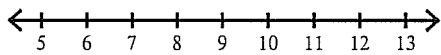
$$15) \frac{x+6}{4} \geq 2$$



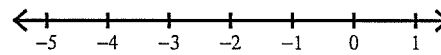
$$16) 5(a+2) > -5$$



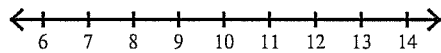
$$17) 7 + \frac{v}{3} \geq 10$$



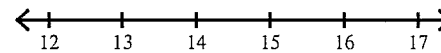
$$18) 18 > 2(v+10)$$



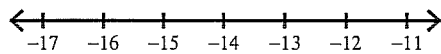
$$19) \frac{-3+m}{6} < 1$$



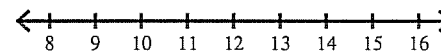
$$20) \frac{9+b}{3} < 8$$



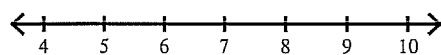
$$21) 7n + 6 \geq -85$$



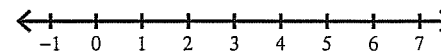
$$22) 143 \leq 11b + 11$$



$$23) -9 \leq -8 + \frac{v}{-6}$$



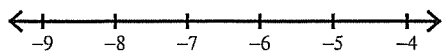
$$24) 8 - 7n > -20$$



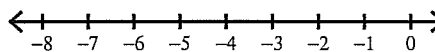
# Multi-Step Inequalities

Solve each inequality and graph its solution.

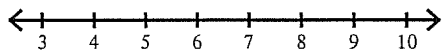
1)  $-3x + 2x \leq 6$



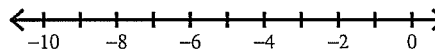
2)  $3 - 6n - 4 < 17$



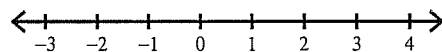
3)  $n - 3 + 4 > 7$



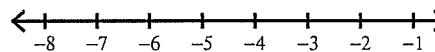
4)  $0 < n - 1 + 6$



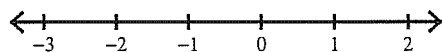
5)  $-3x - 2x < 5$



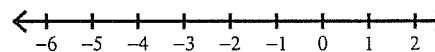
6)  $-(2 + 2m) - 2 > 6$



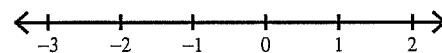
7)  $-9 \geq -8(1 + 6v) - 1$



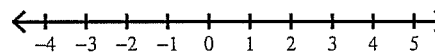
8)  $8(1 - 4x) > 40$



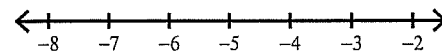
9)  $4(8 - 2b) - 2b \leq 32$



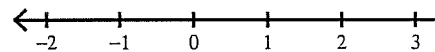
10)  $5x - 7(x + 1) > -9$



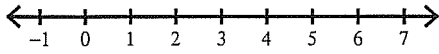
11)  $-p + 6p \leq 4 + 6p$



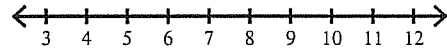
12)  $5 + 4x \geq x + 8$



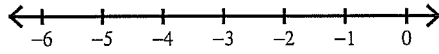
$$13) 4k - 4 - 3k > 13 - 7k - 1 + 8$$



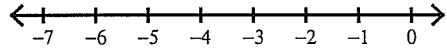
$$14) r - 7 > 9 - r$$



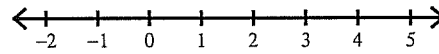
$$15) 6 + 2x \leq 12 + 8x - 3x$$



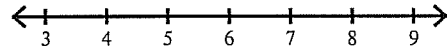
$$16) -30 + 5x > 4(6 + 8x)$$



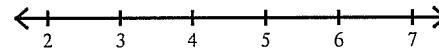
$$17) -7v - 8 \leq 6(1 - 2v) + 1$$



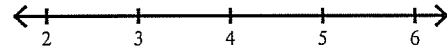
$$18) 38 + 5x > 7(x + 4)$$



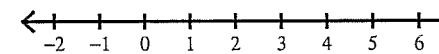
$$19) 7 - 7(x - 7) > -4 + 5x$$



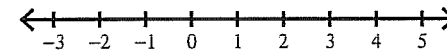
$$20) -3(2v - 5) < -13 + v$$



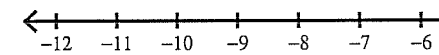
$$21) -24 \leq 6(5b - 2) - 8(8b - 7)$$



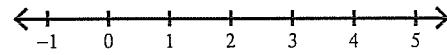
$$22) 7(1 - 5n) - (n + 3) \geq 4$$



$$23) 5n + 7(-6 - n) > 4(n + 3)$$



$$24) x - 8 + 3x + 2 < -6(8x - 7) + 4(8x - 2)$$



**Snoqualmie Elementary School**  
**Optional Student Assignment Parent Comment Form**

Parental input is an important piece of the classroom assignment process. You are aware of the individual characteristics and needs of your child. Your input is valued and is extremely important to your child's assignment. Please take a moment to complete this form and return it to your child's teacher. This information will be considered in combination with the other factors. Each child's assignment will be based upon what appears best for the individual student as well as the impact upon other students, the classroom, and the total school program.

**Please DO NOT request specific teachers, but focus on your child's individual needs as you see them.**

**Return this form to Snoqualmie Elementary School by Friday, May 6, 2011.** Please call the school office (831-8050) if you have any questions.

Child's Name \_\_\_\_\_

Parent/Guardian Name \_\_\_\_\_ Phone \_\_\_\_\_

Current Grade \_\_\_\_\_ Current Teacher \_\_\_\_\_

What are your child's strengths? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What are your child's needs? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Specific concerns I have about next year's assignment: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Parent Signature \_\_\_\_\_ Date \_\_\_\_\_

Please add any additional comments on the reverse side of this form.