



Math Worksheet for 7th Grade

Interpreting linear expressions: diamonds

Name: _____

Due Date: _____

Teacher: _____

Parent Sign: _____

- Left = $3x + 2$, Right = $x - 5$. Find Top and Bottom.
 - Left = $5x - 4$, Right = $2x + 9$. Find Top and Bottom.
 - Left = $-2x + 7$, Right = $4x + 1$. Find Top and Bottom.
 - Left = $6 + x$, Right = $3 - 2x$. Find Top and Bottom.
 - Left = $4y - 3$, Right = $-y + 8$. Find Top and Bottom.
 - Left = $2a$, Right = $5a - 7$. Find Top and Bottom.
 - Left = $x + 5$, Right = $x - 2$. Find Top and Bottom.
 - Left = $7m - 2$, Right = $3m + 6$. Find Top and Bottom.
 - Left = $9 - 3x$, Right = $2x + 4$. Find Top and Bottom.
 - Left = $\frac{1}{2}t + 3$, Right = $-\frac{1}{2}t + 5$. Find Top and Bottom.
 - The top of a diamond is $10x + 6$ and the left is $6x + 1$. Find the right and the bottom.
 - The top is $8y - 3$ and the right is $3y + 2$. Find the left and the bottom.
 - In a diamond the top is $12 - 2a$ and the left is $5 - a$. Find the right and the bottom.
 - The top is $7p + 9$ and the right is $2p - 1$. Find the left and the bottom.
 - The top is $4k$ and the left is $7k - 5$. Find the right and the bottom.
 - Mia says the left corner is $3x + 4$ (girls), the right corner is $2x - 1$ (boys).
 - Write expressions for the total students (top) and the difference (left - right).
 - If $x = 5$, how many total students and what is the difference?
 - A plant's height in cm is given by left = $2h + 3$, and right = $h - 2$.
 - Write the top and bottom expressions.
 - If $h = 4$, evaluate top and bottom.
 - Two recipes need ingredients: left = $4n + 2$ (cups of flour for recipe A), right = $n + 5$ (for B).
 - Find top and bottom expressions.
 - If $n = 3$, what are top and bottom?
 - Left = $10 - x$, Right = $2x + 1$. The bottom (difference) is 5. Find x .
 - Top = 15, Left = $3x - 1$. Find Right and Bottom. (Assume expressions are in x and result 15 is constant.)
- Interpreting linear expressions: flowers (15 questions)
- (Center = sum of the four petals)
- Petals: x , $2x + 1$, 3, and 4. Find the center expression.
 - Petals: $5y - 2$, $y + 3$, $-y + 4$, and 2. Find the center expression (combine like terms).
 - Petals: $3a$, $2a - 5$, 4, and $-a + 1$. Find center expression.
 - Center = 20 and three petals are 3, $2x + 1$, and $x - 2$. Find the fourth petal.



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25. Center = $7m + 6$ and petals are $2m$, $m + 2$, and 3 . Find the fourth petal.
26. Petals: $4t$, $-t + 6$, 2 , and 1 . Find the center expression and evaluate when $t = 2$.
27. Petals: $\frac{1}{2}p$, $\frac{3}{2}p + 1$, 2 , and -1 . Find center expression and simplify.
28. Three petals are $x + 2$, $x - 1$, and 4 . If the center is $5x + 3$, find the missing petal.
29. Petals: $2u$, $2u$, $-u$, and 5 . Find the center and the center value when $u = 3$.
30. Petals: $6 - v$, $2v$, $v - 1$, and 3 . Find the center expression and simplify.
31. Word problem: Four friends collect cans. Petal expressions represent cans each friend collected: $n + 1$, $2n - 2$, 3 , and n .
- a) Write an expression for the total cans (center).
- b) If $n = 4$, how many cans total?
32. Word problem: A machine produces petals: $2x$, $x + 4$, $3x - 1$, and 5 . The center is the total produced.
- a) Find the center expression.
- b) If $x = 2$, how many produced?
33. The center equals 0 . Three petals are $2k$, $-k + 3$, and $-k - 1$. Find the fourth petal.
34. Petals: $a - 2$, $3 - a$, 4 , and 1 . Simplify the center expression.
35. Petals: $2s + 1$, $-s + 2$, $s - 3$, and 4 . Show that the center simplifies to a constant (no s).

Writing expressions – word problems (15 questions)

36. Sarah has 3 more than twice the number of stickers Nate has. If Nate has n stickers, write an expression for Sarah's stickers.
37. A taxi charges \$2 as a flag drop plus \$1.50 per mile. Write an expression for the cost C of a trip of m miles.
38. A rectangle's length is L and width is 2 less than the length. Write an expression for the perimeter in terms of L .
39. A movie ticket is \$8. The snack pack costs \$ x . If you buy 3 tickets and 4 snack packs, write an expression for the total cost.
40. A gardener plants 5 rows with r flowers in each row and then adds 7 extra flowers. Write an expression for the total flowers.
41. A book has p pages. You read 12 pages each day. Write an expression for pages left after d days.
42. A car rental charges \$25/day plus \$0.10 per mile. Write an expression for total cost for d days and m miles.
43. A store sells apples at \$ a per kilogram. You buy 3 kg and get b kg free. Write an expression for kilograms received and the cost.
44. A school band needs 4 times the number of chairs as students S minus 3 chairs reserved. Write an expression for chairs needed.
45. A recipe calls for 2 cups of sugar per batch. You want to make b batches but reduce sugar by 1 cup total. Write an expression for sugar needed.



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46. You have x dollars. You spend \$7 on lunch and want to save the rest equally over 3 days. Write an expression for how much you save per day.
47. A gym membership is \$20 per month plus a \$15 enrollment fee. Write expression for total cost for m months.
48. An elevator holds 10 people minus 2 for each heavy item carried (h heavy items). Write an expression for how many people can ride with h heavy items.
49. You score 5 points for each correct answer and lose 2 points for each incorrect answer. Write an expression for total score if you have c correct and i incorrect.
50. A farmer grows x corn rows. Each row gives 30 ears. He sells them at \$ p per ear. Write an expression for total revenue.