Expressions and equations Worksheet

Middle School Math

Name _____ Date _____

Warm-up

1. Simplify: $4x + 10x$

2. Solve: $8x = 16$

3. Solve $x - 9 < 2$. Write the boundary value: $x < \square$.

4. Expand: $5(x - 3)$

5. Solve: $x + 12 = 19$

Practice

6. Simplify: $2x - 1 - 4x + 9$

7. Solve: $3x - 2 = 10$

8. Solve: $-3x < 21$
   (A) $x > -7$ (B) $x < -7$ (C) $x > 7$ (D) $x < 7$

9. Find the value of $2x - 5$ when $x = 7$.

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10. Solve: $\frac{x}{2} - 9 = -15$

11. Solve $6x + 2 > 32$. What number goes in $x > \square$?

12. Simplify: $8 - 4(x - 7)$

13. Taxi: \$5 to start plus \$4 per mile. Your ride cost \$61. How many miles?

Challenge

14. For which k does $9x + kx$ equal $8x$ for every x?

15. I think of a number, double it, add 15, and get 39. What's my number?

16. You have \$47 and want rides at \$6 each, after paying \$11 to enter. What's the most rides you can take?

17. A rectangle has sides $x + 3$ and 8. What's its perimeter, as an expression?

18. Solve: $11 - 2x = 13$

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Expressions and equations Worksheet: Answer Key

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1. $14x$

   Add the coefficients.

2. 2

   Divide both sides by 8.

3. 11

   Undo the -9. Adding or subtracting doesn't flip the sign.

4. $5x - 15$

   Multiply both terms by 5.

5. 7

   Undo the 12 on both sides.

6. $-2x + 8$

   Add x terms together and numbers together.

7. 4

   Undo -2 first, then divide.

8. (A) $x > -7$

   Dividing by -3 flips the sign.

9. 9

   Replace x: $2(7) - 5$.

10. -12

    Undo -9, then multiply by 2.

11. 5

    Undo 2, then divide by the positive 6.

12. $36 - 4x$

    The -4 multiplies both terms, so $-4 \times -7 = +28$.

13. 14

    $4m + 5 = 61$. Subtract, then divide.

14. -1

    Coefficients must match: $9 + k = 8$.

15. 12

    $2n + 15 = 39$.

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16. 6

    $11 + 6n \leq 47$, and round down since part of a ride isn't possible.

17. $2x + 22$

    $2(x + 3) + 2(8)$.

18. -1

    Subtract 11, then divide by a negative.

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