

Honors Algebra 1 ~ Summer Packet

This packet contains Pre-Algebra concepts that were taught in 7th and 8th grade. It is important that you know and understand these concepts, as we will build on them in Honors Algebra 1. You should be able to complete questions 1-31 in the packet without the use of a calculator. Be sure to show ALL of your work!

This packet is due on the first day of school. The packet will count as three homework grades for the first marking period. **After briefly reviewing the information in this packet with additional notes and examples, you will be tested on the material.**

Enjoy your summer and see you in the fall!

Honors Algebra 1 Summer Packet Name _____

Variables & Expressions**General Questions: Answer each question using complete sentences.**

1. What is the difference between an expression and an equation?	2. For each operation (+, -, x, ÷), name three words or expressions that indicate the operation.
3. What are like terms? Give an example of two like terms.	4. How do you combine like terms?

Vocabulary, Equations & Expressions

5. Circle the constant and underline the coefficient for each expression below.

a. $5x - 3$

b. $2x + 7$

c. $2 - 4x$

d. $x + 3$

6. Create an algebraic expression with a coefficient of 7 and a constant of 4.

7. Create an algebraic expression with a coefficient of -1 and a constant of -12.

8. Which of the following are algebraic expressions? Circle all that apply.

$5x - 2$

$8x=8$

w

$14 + 5x$

$2w - 6$

$4x - 8 = 9$

Translating between Words & Expressions

9. Translate the words into an algebraic expression.

4 times x	The sum of x and 6	The product of 9 and y	w less than 8
5 more than x	The difference of 6 and x	9 times the sum of x and 4	The product of 5 and y divided by 3
The quotient of 300 and the quantity of x times 2	The product of 7 and x minus the quantity of 4 less than y	The quotient of 35 and the quantity of x minus 7	The quantity of 9 more than x divided by the quantity of 12 less than y

Tables & Expressions

Complete the table.

10.

n	$-n^2$
-5	
10	
-15	

n	4 less than n
-20	
18	
-16	
14	

Write an expression for the following situations.

11. Tiffany has 6 dollars less than Jessica. Jessica has x dollars. Tiffany's money:

12. The recipe calls for twice the amount of sugar than flour. There is F amount of flour in the recipe. Amount of sugar:

13. Mark's quiz grade is one more than twice Ted's quiz grade. Ted's quiz grade is x. Mark's quiz grade:

Evaluating Expressions

14. Evaluate the expression for the given value

$(2n + 1)^2$ for $n = -3$	$8(x + 5)(x - 2)$ for $x = 4$	$-3x^2$ for $x = 2$
$-x^2$ for $x = -6$	$\frac{x}{y} + 7$ for $x = 12$ and $y = 1/2$	$x - (2x - 8)$ for $x = 10$

Combining Like Terms

15. Simplify each expression.

$7x + 8x$	$15x^2 + 5x^2$	$9(x + 5) - 7(x - 3)$
$7y + 8x + 3y + 2x$	$6y - 3y - 2(y - 1)$	$2(x - y + z) - 4(x - y + z)$

16. MULTIPLE CHOICE: Which situation is best modeled by the expression $25 - x$?

- George places "x" more video games on a shelf with 25 games
- Sarah has driven "x" miles of a 25 mile trip
- Amelia paid \$25 of an "x" dollar lunch she shared with Ariel
- George has 25 boxes full of "x" baseball cards each

17. There were three times as many adults as students attending a school play. If the attendance was 480, how many adults and how many students attended the play?

- | | |
|-------------------------------|-------------------------------|
| a) 360 students
120 adults | b) 240 students
240 adults |
| c) 120 students
360 adults | d) 160 students
320 adults |

18. A group of 15 parents buys tickets to a fundraiser show and receives a group discount of \$2 off the regular ticket price p . Which expression represents the total cost of the tickets, in dollars?

- | | |
|---------------------|-----------------------|
| a) $15 \cdot p + 2$ | b) $15 \cdot (p - 2)$ |
| c) $p - 15 \cdot 2$ | d) $p \cdot (15 - 2)$ |

19. Claire has had her driver's license for three years. Bill has had his license for "b" fewer years than Claire. Which expression can be used to show the number of years Bill has had his driver's license?

- | | |
|------------|------------|
| a) $3 + b$ | b) $b + 3$ |
| c) $3 - b$ | d) $b < 3$ |

Variables & Expressions Short & Extended Constructed Response

20. A rectangle is 6 inches longer than it is wide. Write and simplify an expression for the perimeter of the rectangle in terms of the width w .

21. You and a friend worked in the school store last week. You worked 4 hours less than your friend. Let h be the number of hours your friend worked. Write an expression in simplest form that represents the total number of hours you both worked.

Solving Equations

22. Solve each equation. Be sure to show all work.

$x + 9 = -8$	$\frac{w}{3} = -2$	$30 = 12m$
$x - (-6) = 12$	$\frac{-1}{6}y = 5$	$2x - 7 = 13$
$\frac{1}{2}(m - 5) = 9$	$\frac{x}{-4} + 8 = -3$	$-3(x + 2) - 4(3 - x) = 11$

Extended Constructed Response Questions

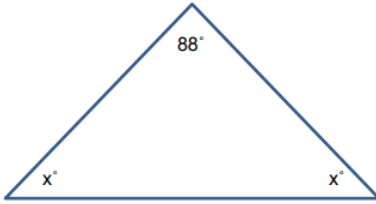
23. The clerk at the bank desk says there is an initial charge of \$50.00 to open up a bank account at the Sunny Farms Bank. He then explains that after, every account added on will cost an additional \$15.50 each. The Smith Family is thinking of opening an account for the family.

- Write an equation that represents the cost to open accounts for the family members. Define your variable.
- What is the greatest amount of family members that could open a bank account without exceeding a fee of \$500?
- How much money would it cost if Mom Smith, Dad Smith, Sister Smith, and Brother Smith want to open an account, and Mom Smith has a special discount coupon of 15% off the final price?

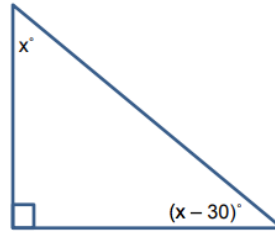
Geometry: Triangles Review

Find the missing angles in the following triangles.

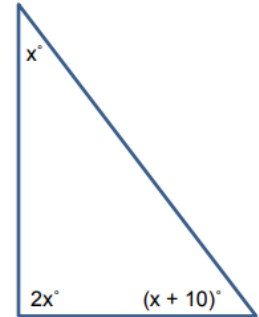
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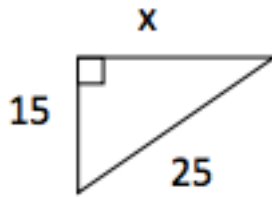


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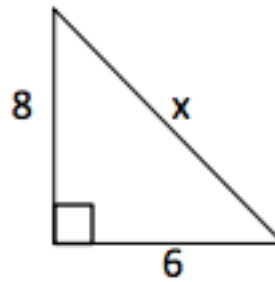


Use the Pythagorean Theorem to solve for the missing side in each triangle.

27.

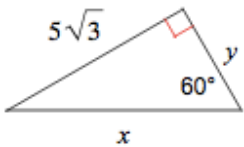


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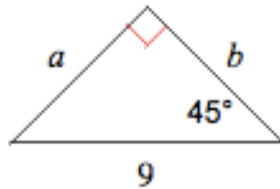


Use special right triangles to solve for the missing side length.

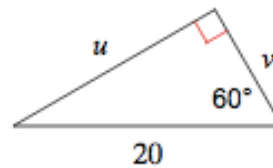
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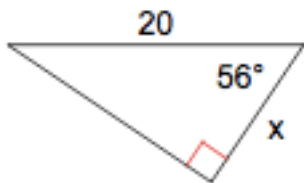


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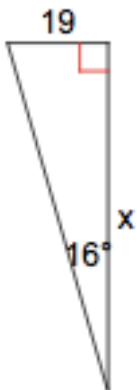


Solve for the missing side using trigonometry. Round to the nearest hundredth. (Remember SOH CAH TOA)

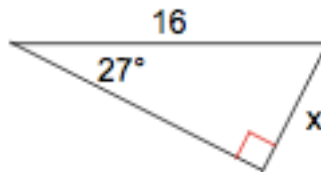
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33.

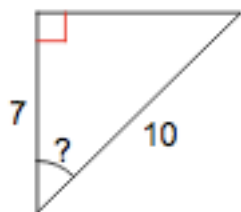


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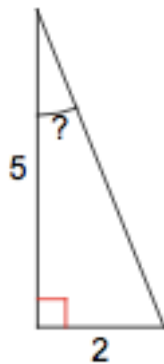


Solve for the missing angle using trigonometry. Round to the nearest degree. (Remember to use inverse trigonometric functions)

35.



36.



37.

