

Answer completely and show all work

1. Simplify each expression.

a. $3 + 12 \cdot 5 \div (16 - 7)$

$$3 + 60 \div 9$$
$$3 + 10 = \underline{13}$$

c. $3(16 - 9) + 14 \div 7$

$$21 + 2 = \underline{23}$$

b. $9 \cdot 3 + 8 \div 2 - (17 + 8)$

$$27 + 4 - 25 = \underline{6}$$

d. $4 \cdot 45 \div (27 - 8 \cdot 3)^2 - 10$

$$180 \div (27 - 24)^2 - 10$$
$$180 \div (9) - 10 = 20 - 10 = \underline{10}$$

2. Insert parentheses when needed to make each sentence true.

a. $5 + 12(3 - 1) = 29$

b. $36 \div 12 - 5 + 9 = 7$

None needed

3. Evaluate each expression.

a. $3a - 7$ when $a = 6$

$$18 - 7 = \underline{11}$$

b. $-2b + 10$ when $b = 3$

$$-6 + 10 = \underline{4}$$

c. $\frac{c}{4} + 8$ when $c = 12$

$$3 + 8 = \underline{11}$$

d. $\frac{d+5}{3}$ when $d = 16$

$$\frac{21}{3} = \underline{7}$$

4. Evaluate each expression for $x = 6$ and $y = 10$.

a. $5x - 2y$

$$30 - 20 = \underline{10}$$

b. $3 + 4y - 6x$

$$3 + 40 - 36 = \underline{7}$$

5. Write an algebraic expression for each verbal expression.

a. Eight less than twice some number.

$$\underline{2x - 8}$$

b. Two more than the quotient of x and 5.

$$\underline{\frac{x}{5} + 2}$$

c. The product of a number and 6 times y .

$$\underline{2(6 \cdot y)} \text{ or } \underline{x(6 \cdot y)}$$

6. Use substitution to determine which number in the given set is a solution of each equation: $\{0, 1, 2, 4, 5, 7, 9, 10, 12\}$

a. $3x - 13 = 8$

$$\underline{x = 7}$$

b. $\frac{x}{3} + 6 - x = 0$

$$\underline{x = 9}$$

c. $x^2 - 2x + 5 = 13$

$$\underline{x = 4}$$

d. $18 - 5x = x + 6$

$$\underline{x = 2}$$

Answer completely and show all of your work.

Hayden's parents are planning a birthday party for his little brother, Austin. Hayden is confident in his math skills and wants to help figure out the cost. He has enlisted your help with the calculations. Here is what is known so far:



- ✓ • The site, Jump 'n Jammin charges \$325.35 for up to 20 kids for 3 hours.
- ✓ • They expect to pay \$45.50 for decorations.
- • For extra supervision, they hired their babysitter at \$12.50 per hour.
- + • Food and refreshments will cost \$6.25 per person.
- • The Puppeteer will be there from the beginning and charges \$64.85 plus \$29.90 per hour.
- Grandma pitched in \$150.00 to help ease the total cost of the event.
- Between friends, family, and Austin himself, they are expecting 17 kids to be coming.

1. Use the Distributive Property to write an expression to find the cost of the babysitter and Puppeteer.

$$12.50h + 64.85 + 29.90h$$

$$64.85 + h(12.5 + 29.9)$$

2. Simplify the expression you wrote for #1 to find the cost of the babysitter and the Puppeteer.

$$@h = 3 \quad 64.85 + 3(42.4)$$

$$64.85 + 127.2 = \underline{\$192.05}$$

3. How much will the food and refreshments cost?

$$6.25(17) = \underline{\$106.25}$$

4. Write an expression for the total cost of the party after grandma's assistance.

JJ: 325.35	}	370.85 +	←	192.05	669.15
Dec: 45.50				106.25	-150.00
		298.30		298.30	\$519.15

5. How much money will this party cost per child attending?

$$\frac{519.15}{17} \approx \$30.54$$

6. Write a note to Hayden with the expected cost per child for this party. Use the information provided and your solutions from #1-5 to support your conclusion.

Answers will vary, but specific numbers and restrictions should be noted.

7. Based on all of this information, would you advise him to go through with the party or suggest doing something else for his brother? Explain your reasoning.

Answers will vary. Perhaps more could be done for over \$30 per child.