Basic Algebra 1.5

Use a four-step plan to solve problems

formula

commutative property

associative property

identity

zero product property

Substitution

distributive property

0d 75¢

15n

1d 13n

2d 11n

3d 9n

4d 7n

5d 5n

6d 3n

7d 1n

Problem-Solving Strategies

Look for a pattern.

Draw a diagram.

Make a table.

Work backward.

Use an equation or formula.

Make a graph.

Guess and check.

The following properties are true for any numbers a, b, and c.		
Property	**Addition**	**Multiplication**
Commutative	$a + b = b + a$	$ab = ba$
Associative	$(a + b) + c = a + (b + c)$	$(ab)c = a(bc)$
Identity	$a + 0 = 0 + a = a$ 0 is the identity.	$a \cdot 1 = 1 \cdot a = a$ 1 is the identity.
Zero		$a \cdot 0 = 0 \cdot a = 0$
Distributive	$a(b + c) = ab + ac$ and $a(b - c) = ab - ac$	
Substitution	If $a = b$, then a may be substituted for b.	

$3 + 4 \cdot 2$

$3 + 8$

11

$R = J + 2$ $n+2$ $R - 3 = C$

Carlos bought 2 more rock CDs than jazz CDs and 3 fewer country CDs than rock CDs. He bought eight CDs, including 1 classical CD.

3. Did Carlos buy more country than rock? $R + J + C + 1 = 8$
4. Which type of CD did he buy the most of? rock
5. If he bought n jazz CDs, how many rock CDs did he buy?

T F Ø

7. **Money** Nate has $267 in bills. None of the bills is greater than $10. He has eleven $10 bills. He has seven fewer $5 bills than $1 bills.

   a. How many $5 and $1 bills does he have?

   b. Describe the problem-solving strategy that you used to solve this problem. *(Example 2)*

Tens (11) = 110

Fives F + 7 = Ø

Ones

11(10) + 1X + 5(X-7) = 267

110 + ? + ? = 267

−110

? + ? = 157

F	Ø	
25	32	125+32
30	23	150+23

C = cheap E = exp.

8. **Shopping** Two cans of vegetables together cost ~~$1.08~~ 98. One of them costs 10¢ more than the other. *(Example 2)* −10

   a. Would 2 cans of the less expensive vegetable cost more or less than $1.08?

   b. How much would it cost to buy 3 cans of each?

.49
.59

3c + 3e = ?

3(.49) + 3(.59)

1.47 + 1.77 = $3.24

Solve each problem. Use any strategy.

9. Craig is 24 years younger than his mother. Together their ages total 56 years. How old is each person? Explain how you found your answer.

16 + 40

$n + n - 24 = 56$

$2n - 24 = 56$

$+24 \quad +24$

$2n = 32$

$n = 16$

$n + (n+24) = 56$

$2n + 24 = 56$

$-24 \quad -24$

$2n = 32$

$\frac{2n}{2} = \frac{32}{2}$

$n = 16$

$\frac{2n}{2} = \frac{80}{2}$