

# Word Problem Structures: Teacher Reference Cards

## PROBLEM STRUCTURE

**PART-PART-WHOLE, TOTAL, or COMBINE (Additive Schema)**

## DEFINITION

**Parts** put together into a **whole** (static situation)

## EXAMPLES

On Friday, **1,045** tickets were purchased for a concert and **998** tickets were purchased for a basketball game. How many tickets were sold on Friday?

$$1,045 \text{ tickets} + 998 \text{ tickets} = X$$

**2,043** tickets were purchased on Friday. If **1,045** tickets were for a concert and the others were for a basketball game, how many tickets were for the basketball game?

$$1,045 \text{ tickets} + X = 2,043 \text{ tickets}$$

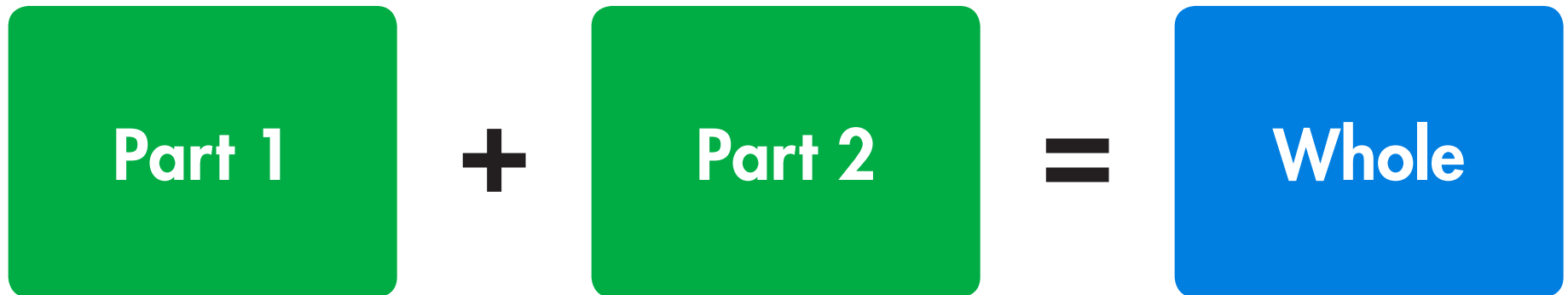
**2,043** tickets were purchased on Friday. If **998** tickets were for a basketball game and the others were for a concert, how many tickets were for the concert?

$$X + 998 \text{ tickets} = 2,043 \text{ tickets}$$

## EQUATION

$$P1 + P2 = W$$

## GRAPHIC ORGANIZER



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## PROBLEM STRUCTURE

**DIFFERENCE or COMPARE (Additive Schema)**

## DEFINITION

**Greater** and **less** amounts compared for a **difference**

## EXAMPLES

Shinead has **90.82** centimeters of ribbon. Amanda has **4.05** centimeters of ribbon. How many more centimeters of ribbon does Shinead have? (Alternative wording: How many fewer centimeters of ribbon does Amanda have?)

$$90.82 \text{ cm} - 4.05 \text{ cm} = X$$

Shinead has **86.77** more centimeters of ribbon than Amanda. If Amanda has **4.05** centimeters of ribbon, how much does Shinead have?

$$X - 4.05 \text{ cm} = 86.77 \text{ cm}$$

Amanda has **86.77** fewer centimeters of ribbon than Shinead. Shinead has **90.82** centimeters of ribbon. How much ribbon does Amanda have?

$$90.82 \text{ cm} - X = 86.77 \text{ cm}$$

## EQUATION

$$G - L = D$$

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## Word Problem Structures: Teacher Reference Cards

**PROBLEM STRUCTURE** CHANGE or JOIN (Additive Schema)

**DEFINITION** An amount that **increases** over time

**EXAMPLES**

Shannah had **\$44.03** in her bank account. Then, she received **\$7.25** for selling some items at a garage sale. How much money does Shannah have now?

$$\text{\$44.03} + \text{\$7.25} = X$$

Shannah had **\$44.03** in her bank account. Then, she received money for selling items at a garage sale. Now, Shannah has **\$51.28**. How much money did she earn at the garage sale?

$$\text{\$44.03} + X = \text{\$51.28}$$

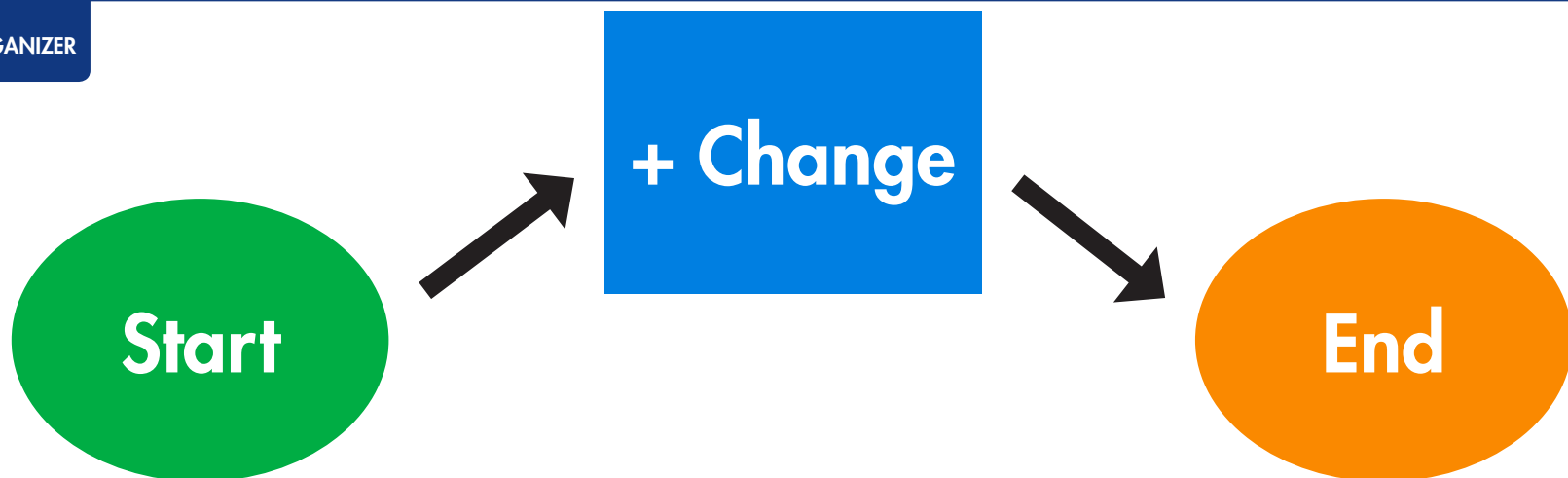
Shannah had some money. Then, she made **\$7.25** for selling items at a garage sale. Now, she has **\$51.28**. How much money did Shannah start with?

$$X + \text{\$7.25} = \text{\$51.28}$$

**EQUATION**

$$ST + C = E$$

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## Word Problem Structures: Teacher Reference Cards

### PROBLEM STRUCTURE

**CHANGE or SEPARATE (Additive Schema)**

### DEFINITION

An amount that **decreases** over time

### EXAMPLES

Micaela had  $9\frac{1}{3}$  yards of fabric. She used  $2\frac{1}{2}$  yards of the fabric to make a skirt. How much fabric does Micaela have now?

$$9\frac{1}{3} \text{ yards} - 2\frac{1}{2} \text{ yards} = X$$

Micaela had  $9\frac{1}{3}$  yards of fabric. She used some to make a skirt. Now, Micaela has  $6\frac{5}{6}$  yards. How much fabric did Micaela use on her skirt?

$$9\frac{1}{3} \text{ yards} - X = 6\frac{5}{6} \text{ yards}$$

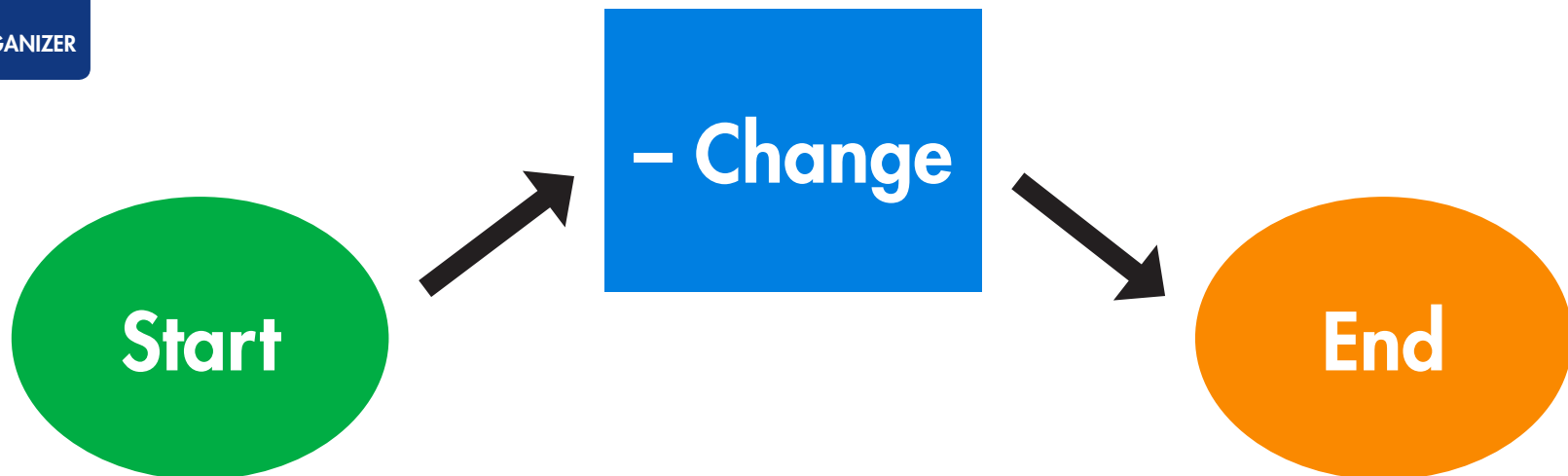
Micaela had some fabric. Then she used  $2\frac{1}{2}$  yards to make a skirt. Now she has  $6\frac{5}{6}$  yards. How much fabric did Micaela start with?

$$X - 2\frac{1}{2} \text{ yards} = 6\frac{5}{6} \text{ yards}$$

### EQUATION

$$ST - C = E$$

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# Word Problem Structures: Teacher Reference Cards

## PROBLEM STRUCTURE

### EQUAL GROUPS (Multiplicative Schema)

## DEFINITION

**Groups** multiplied by the **number in each group** for a **product**

## EXAMPLES

Sam has **17** rolls of dimes. There are **50** dimes in each roll. How many dimes does Sam have altogether?

$$17 \times 50 = X$$

Sam has **850** dimes. She wants to distribute them equally among her **17** coin rolls. How many dimes will be in each roll?

$$17 \times X = 850$$

Sam has **850** dimes. She put them into rolls containing **50** dimes each. How many rolls did Sam make?

$$X \times 50 = 850$$

## EQUATION

$$G \times N = P$$

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**Groups**

**×**

**Number  
in each  
group**

**=**

**Product**

## Word Problem Structures: Teacher Reference Cards

### PROBLEM STRUCTURE

### COMPARISON (Multiplicative Schema)

### DEFINITION

**Set** multiplied by a number of **times** for a **product**

### EXAMPLES

Jill filled  $6\frac{1}{2}$  gallons of bottled water. Mark filled 7 times as many gallons as Jill. How many gallons did Mark fill?

$$6\frac{1}{2} \text{ gallons} \times 7 = X$$

Mark filled  $45\frac{1}{2}$  gallons of bottled water. He filled 7 times as many gallons as Jill. How many gallons did Jill fill?

$$X \times 7 = 45\frac{1}{2} \text{ gallons}$$

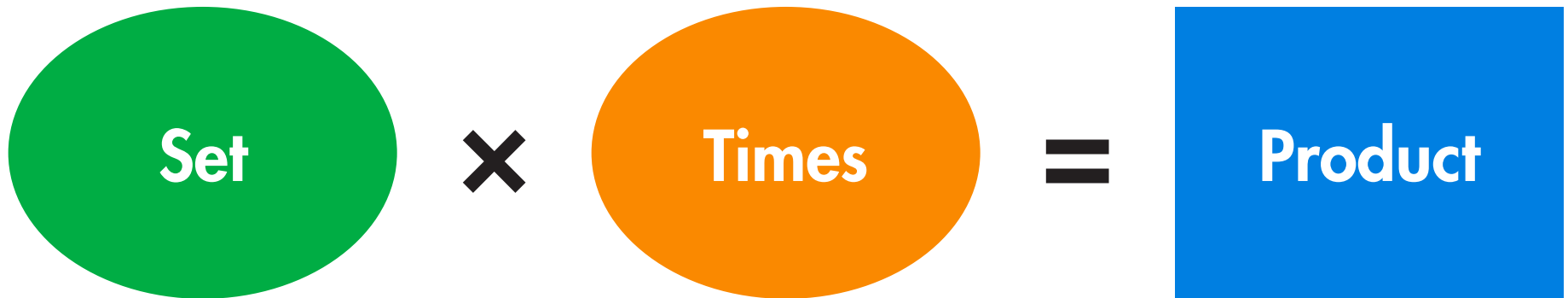
Mark filled  $45\frac{1}{2}$  gallons of bottled water, and Jill filled  $6\frac{1}{2}$  gallons. How many times as many gallons did Mark fill as Jill did?

$$6\frac{1}{2} \text{ gallons} \times X = 45\frac{1}{2} \text{ gallons}$$

### EQUATION

$$S \times T = P$$

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## Word Problem Structures: Teacher Reference Cards

### PROBLEM STRUCTURE

**COMBINATIONS (Multiplicative Schema)**

### DEFINITION

One set multiplied by another set for a product

### EXAMPLES

Alex has 12 shirts and 8 shorts. How many different outfits can he put together with one shirt and one pair of shorts?

$$12 \times 8 = X$$

### EQUATION

$$S1 \times S2 = P$$

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# Word Problem Structures: Teacher Reference Cards

## PROBLEM STRUCTURE

**RATIOS and PROPORTIONS (Multiplicative Schema)**

## DEFINITION

A **ratio** is a comparison between two things.  
A **proportion** is a statement that two ratios are equal.

## EXAMPLES

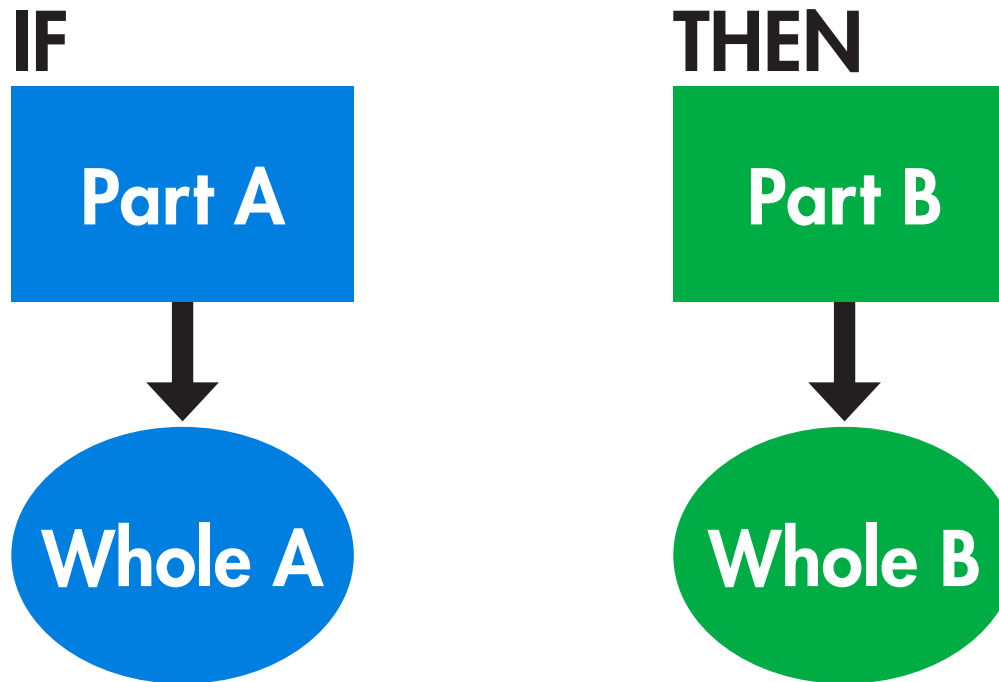
Melody can read **14** pages in **42** minutes. How many minutes would it take her to read **3** pages?

$$\frac{14 \text{ pages}}{42 \text{ minutes}} = \frac{3 \text{ pages}}{X \text{ minutes}}$$

## EQUATION

$$\frac{\text{Part}}{\text{Whole}} = \frac{\text{Part}}{\text{Whole}}$$

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## REFERENCES

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