# Estimation word 

 problemsElaine Murphy CWE

## Steps to Estimating word problems

* Step i: Choose the operation
* Step 2: Round the numbers to the smallest numbers highest place value
* Step 3: Solve the problem using the estimated numbers.
* Step 4: Check work using the real numbers.


## My Turn

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?

## My Turn

Sam had \$2o to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?

## Step i: Choose Operation

## My Turn

Sam had $\$ 20$ to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step i: Choose Operation

+ He needs to add the numbers together in order to decide if he has enough money.


## My Turn

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step i: Choose Operation

+ He needs to add the numbers together in order to decide if he has enough money.

Step 2: Round numbers to smallest number's lowest place value

## My Turn

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step i: Choose Operation

+ He needs to add the numbers together in order to decide if he has enough money.

Step 2: Round numbers to smallest number's lowest place value

$$
\begin{aligned}
& 10.34= \\
& 8.99=
\end{aligned}
$$

## My Turn

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step i: Choose Operation

+ He needs to add the numbers together in order to decide if he has enough money.

Step 2: Round numbers to smallest number's lowest place value

Smallest number's
highest place value
ones place.

$$
\begin{aligned}
& 10.34= \\
& 8.99=
\end{aligned}
$$

## My Turn

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step i: Choose Operation

+ He needs to add the numbers together in order to decide if he has enough money.

Step 2: Round numbers to smallest number's lowest place value

$$
10.34=
$$

$\begin{aligned} & \text { Smallest number's } \\ & \text { highest place value }\end{aligned} 8.99=$ ones place.

## My Turn

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step i: Choose Operation

+ He needs to add the numbers together in order to decide if he has enough money.

Step 2: Round numbers to smallest number's lowest place value $10.34=$
Smallest number's
highest place value 8.9) = ones place.

## My Turn

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step i: Choose Operation

+ He needs to add the numbers together in order to decide if he has enough money.

Step 2: Round numbers to smallest number's lowest place value

$$
\begin{aligned}
& 10.34= \\
& 8.99= \\
& \text { Greater than } 5
\end{aligned}
$$

$\begin{aligned} & \text { Smallest number's } \\ & \text { highest place value }\end{aligned} 8.99=$ ones place.

## My Turn

Sam had \$2o to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step i: Choose Operation

+ He needs to add the numbers together in order to decide if he has enough money.

Step 2: Round numbers to smallest number's lowest place value $10.34={ }^{\text {less than } 5}$
Smallest number's highest place value ones place. $8.99=$ Greater than 5

## My Turn

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step i: Choose Operation

+ He needs to add the numbers together in order to decide if he has enough money.

Step 2: Round numbers to smallest number's lowest place value $10.3 \overleftarrow{4}{ }^{\text {less than } 5}$
Smallest number's highest place value ones place. $8.99=$ Greater than 5

## My Turn

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step i: Choose Operation

+ He needs to add the numbers together in order to decide if he has enough money.

Step 2: Round numbers to smallest number's lowest place value $10.34 \overline{4}^{\text {less than } 5} \$ 10.00$
Smallest number's highest place value ones place. $8.99=\quad \$ 9.00$ Greater than 5

## My Turn Continued

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?

## My Turn Continued

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step 3: Solve the Problem 10.00

## My Turn Continued

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step 3: Solve the Problem 10.00
$+9.00$

## My Turn Continued

Sam had \$20 to spend at Target. He bought a move for 10.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step 3: Solve the Problem 10.00
$\frac{+9.00}{19.00}$

## My Turn Continued

Sam had \$20 to spend at Target. He bought a move for io.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step 3: Solve the Problem 10.00

$$
\frac{+9.00}{19.00}
$$

He will have enough money to buy everything.

## My Turn Continued

Sam had \$20 to spend at Target. He bought a move for io.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step 3: Solve the Problem 10.00

$$
\frac{+9.00}{19.00}
$$

He will have enough money to buy everything. Step 4: Check using the real numbers.

## My Turn Continued

Sam had \$20 to spend at Target. He bought a move for Io.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step 3: Solve the Problem 10.00

$$
\frac{+9.00}{19.00}
$$

He will have enough money to buy everything.
Step 4: Check using the real numbers.
IO. 34

## My Turn Continued

Sam had \$20 to spend at Target. He bought a move for Io.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step 3: Solve the Problem 10.00

$$
\frac{+9.00}{19.00}
$$

He will have enough money to buy everything.
Step 4: Check using the real numbers.
IO. 34
$+8.99$

## My Turn Continued

Sam had \$20 to spend at Target. He bought a move for Io.34 and a T-shirt for 8.99. Does he have enough money for both items?
Step 3: Solve the Problem 10.00

$$
\frac{+9.00}{19.00}
$$

He will have enough money to buy everything. Step 4: Check using the real numbers.
IO. 34
$+8.99$
19.33 Sam still has enough money to buy the items he wants. $\qquad$

## Together

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?

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Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?

Step i: Choose Operation

+ and -Susan needs to first add up her purchases and then subtract from the $\$ 250.00$


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Step 2: Round numbers to smallest number's lowest place value

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Step i: Choose Operation

+ and -Susan needs to first add up her purchases and then subtract from the $\$ 250.00$

Step 2: Round numbers to smallest number's lowest place value

$$
\begin{aligned}
& 24.67= \\
& 121.56=
\end{aligned}
$$

## Together

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?

Step i: Choose Operation

+ and -Susan needs to first add up her purchases and then subtract from the $\$ 250.00$

Step 2: Round numbers to smallest number's lowest place
value

Smallest number's
highest place value ones place.

$$
24.67=
$$

$$
121.56=
$$

## Together

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?

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Step 2: Round numbers to smallest number's lowest place value

Smallest number's $\quad 24.07=$
highest place value ones place.
$121.56=$

## Together

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Step i: Choose Operation

+ and -Susan needs to first add up her purchases and then subtract from the $\$ 250.00$

Step 2: Round numbers to smallest number's lowest place value

Smallest number's $\quad 24.67=$
highest place value ones place.
121.56 =

Less than 5

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+ and -Susan needs to first add up her purchases and then subtract from the $\$ 250.00$

Step 2: Round numbers to smallest number's lowest place value

Smallest number's highest place value ones place.

$$
\begin{aligned}
& 24.67= \\
& 121.56= \\
& \text { Less than } 5
\end{aligned}
$$

## Together

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?

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Step 2: Round numbers to smallest number's lowest place $\begin{array}{ll}\begin{array}{ll}\text { value } \\ \begin{array}{l}\text { Smallest number's } \\ \text { highest place value } \\ \text { ones place. }\end{array} & 24.67= \\ & \text { I21.56 }= \\ \text { Less than } 5\end{array} & \end{array}$

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Step 2: Round numbers to smallest number's lowest place $\begin{array}{ll}\text { value } \\ \begin{array}{l}\text { Smallest number's } \\ \text { highest place value } \\ \text { ones place. }\end{array} & 24.67= \\ & \text { I2I.56 }= \\ \text { Less than } 5\end{array}$

## Together

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?

Step i: Choose Operation

+ and -Susan needs to first add up her purchases and then subtract from the $\$ 250.00$

Step 2: Round numbers to smallest number's lowest place


## My Turn Continued

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?

## My Turn Continued

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?
Step 3: Solve the Problem 20.00

## My Turn Continued

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?
Step 3: Solve the Problem 20.00

$$
+120.00
$$

## My Turn Continued

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?
Step 3: Solve the Problem 20.00

$$
\frac{+120.00}{140.00}
$$

## My Turn Continued

Susan had \$250.00 dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?
Step 3: Solve the Problem 20.00

$$
\frac{+120.00}{140.00}
$$

She will have \$iro.oo to buy lunch.

## My Turn Continued

Susan had \$250.00 dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?
Step 3: Solve the Problem 20.00 250.00 $+\mathbf{1 2 0 . 0 0} \quad \frac{-140.00}{140.00}$
She will have \$iro.oo to buy lunch.

## My Turn Continued

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?
Step 3: Solve the Problem 20.00
$\frac{+120.00}{140.00} \quad \frac{-140.00}{110.00}$

She will have \$iro.oo to buy lunch.
Step 4: Check using the real numbers.

## My Turn Continued

Susan had \$250.00 dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?
Step 3: Solve the Problem 20.00

$$
\frac{+120.00}{140.00} \quad \frac{-140.00}{110.00}
$$

She will have \$iro.oo to buy lunch.
Step 4: Check using the real numbers.
24.67
250.00
She has \$io4.77 to buy lunch

## My Turn Continued

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?

Step 3: Solve the Problem 20.00

$$
\frac{+\mathrm{I} 20.00}{140.00} \quad \frac{-I 40.00}{110.00}
$$

She will have \$iro.oo to buy lunch.
Step 4: Check using the real numbers.

$$
\begin{array}{rr}
24.67 & 250.00 \\
-120.56 & -\quad 145.23 \\
\hline
\end{array}
$$

## My Turn Continued

Susan had $\$ 250.00$ dollars to spend at the Mall. Her total at Old Navy was 24.67 and for Limited Too it was 121.56. How much money did she have left over in order to buy lunch?

Step 3: Solve the Problem 20.00

$$
\frac{+120.00}{140.00} \quad \frac{-140.00}{110.00}
$$

She will have \$iro.oo to buy lunch.
Step 4: Check using the real numbers.

$$
\begin{array}{rr}
24.67 & 250.00 \\
+120.56 & -\quad 145.23 \\
\hline 145.23 & 104.77
\end{array}
$$

## One More together

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?

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Step i: Choose Operation

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Step i: Choose Operation

+ We want to find out how much pizza Tommy ate altogether.


## One More together

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?
Step i: Choose Operation

+ We want to find out how much pizza Tommy ate altogether.
Step 2: Round numbers to smallest number's lowest place value with fractions we want to draw pictures. We want to decide if it is less than $\mathrm{I} / 2$ or larger to $\mathrm{I} / 2$


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Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?
Step i: Choose Operation

+ We want to find out how much pizza Tommy ate altogether.
Step 2: Round numbers to smallest number's lowest place value with fractions we want to draw pictures. We want to decide if it is less than $\mathrm{I} / 2$ or larger to $\mathrm{I} / 2$

$$
\begin{aligned}
& 23 / 8= \\
& 46 / 8=
\end{aligned}
$$

## One More together

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?
Step i: Choose Operation

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Step 2: Round numbers to smallest number's lowest place value with fractions we want to draw pictures. We want to decide if it is less than $\mathrm{I} / 2$ or larger to $\mathrm{I} / 2$

$$
\begin{aligned}
& 23 / 8= \\
& 46 / 8=
\end{aligned}
$$

## One More together

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?
Step i: Choose Operation

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Step 2: Round numbers to smallest number's lowest place value with fractions we want to draw pictures. We want to decide if it is less than $\mathrm{I} / 2$ or larger to $\mathrm{I} / 2$

$$
\begin{aligned}
& 23 / 8= \\
& 46 / 8=\square
\end{aligned}
$$

## One More together

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?
Step i: Choose Operation

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Step 2: Round numbers to smallest number's lowest place value with fractions we want to draw pictures. We want to decide if it is less than $\mathrm{I} / 2$ or larger to $\mathrm{I} / 2$

$$
\begin{aligned}
& 23 / 8= \\
& 46 / 8=
\end{aligned}
$$

## One More together

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?
Step i: Choose Operation

+ We want to find out how much pizza Tommy ate altogether.
Step 2: Round numbers to smallest number's lowest place value with fractions we want to draw pictures. We want to decide if it is less than $\mathrm{I} / 2$ or larger to $\mathrm{I} / 2$

$$
\begin{aligned}
& 23 / 8= \\
& 46 / 8= \\
& 4
\end{aligned}
$$

## One More together

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?
Step i: Choose Operation

+ We want to find out how much pizza Tommy ate altogether.
Step 2: Round numbers to smallest number's lowest place value with fractions we want to draw pictures. We want to decide if it is less than $\mathrm{I} / 2$ or larger to $\mathrm{I} / 2$

$$
\begin{array}{l|l|ll}
23 / 8= & & \text { lesesthanv/2 }=2 \\
46 / 8= & & l_{\text {Lagest than } 1 / 2} & =5
\end{array}
$$

## My Turn Continued

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?

## My Turn Continued

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?

Step 3: Solve the Problem 2

## My Turn Continued

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?

Step 3: Solve the Problem 2

$$
+5
$$

## My Turn Continued

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?

Step 3: Solve the Problem 2

$$
\begin{array}{r}
+5 \\
7
\end{array}
$$

## My Turn Continued

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?

Step 3: Solve the Problem 2

$$
\begin{array}{r}
+5 \\
7
\end{array}
$$

He ate about 7 whole pizzas.

## My Turn Continued

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?

Step 3: Solve the Problem 2

$$
\begin{array}{r}
+5 \\
7
\end{array}
$$

He ate about 7 whole pizzas.
Step 4: Check using the real numbers.

## My Turn Continued

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?

Step 3: Solve the Problem 2

$$
\begin{array}{r}
+5 \\
7
\end{array}
$$

He ate about 7 whole pizzas.
Step 4: Check using the real numbers.

## My Turn Continued

Tommy had $23 / 8$ of a pepperoni pizza and $46 / 8$ of the cheese pizza. How much pizza did he eat altogether?

Step 3: Solve the Problem 2

$$
\begin{array}{r}
+5 \\
7
\end{array}
$$

He ate about 7 whole pizzas.
Step 4: Check using the real numbers.

$$
23 / 8+46 / 8=7 \mathrm{I} / 8
$$

## Together

Samantha baked is pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.

## Together

Samantha baked is pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.

Step i: Choose Operation

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.

Step i: Choose Operation
x because you want to find the total number of cups needed to make 15 pizzas.

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.

Step i: Choose Operation
x because you want to find the total number of cups needed to make 15 pizzas.

Step 2: Round numbers to smallest number's lowest place value

## Together

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Step i: Choose Operation
x because you want to find the total number of cups needed to make 15 pizzas.

Step 2: Round numbers to smallest number's lowest place value

$$
\begin{aligned}
& 15= \\
& 3=
\end{aligned}
$$

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.

Step i: Choose Operation
x because you want to find the total number of cups needed to make 15 pizzas.

Step 2: Round numbers to smallest number's lowest place value

$$
\begin{aligned}
& 15= \\
& 3=
\end{aligned}
$$

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.

Step i: Choose Operation
x because you want to find the total number of cups needed to make 15 pizzas.

Step 2: Round numbers to smallest number's lowest place value

$$
\begin{aligned}
& 15=\text { more than } 5 \\
& 3=
\end{aligned}
$$

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.

Step i: Choose Operation
x because you want to find the total number of cups needed to make 15 pizzas.

Step 2: Round numbers to smallest number's lowest place value

| $15=$ more than 5 | 20 |
| :--- | :--- |
| $3=$ | 3 |

## Together

Samantha baked is pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.

## Together

Samantha baked is pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.
Step 3: Solve the Problem 20

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.
Step 3: Solve the Problem 20
$\times 3$

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.
Step 3: Solve the Problem 20
$\begin{array}{r}\times 3 \\ \hline 60\end{array}$

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.
Step 3: Solve the Problem 20

$$
\begin{aligned}
& \frac{\mathrm{x} 3}{60} \\
& \text { She will need about } 60 \text { cups of sauce. }
\end{aligned}
$$

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.
Step 3: Solve the Problem 20


She will need about 60 cups of sauce.
Step 4: Check using the real numbers.

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.
Step 3: Solve the Problem 20


She will need about 60 cups of sauce.
Step 4: Check using the real numbers.
15

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.
Step 3: Solve the Problem 20


She will need about 60 cups of sauce.
Step 4: Check using the real numbers.
15
x 3

## Together

Samantha baked 15 pizzas. She uses 3 cups of tomato sauce for each pizza. Estimate how much sauce she will need to bake all of the pizzas.
Step 3: Solve the Problem 20


She will need about 60 cups of sauce.
Step 4: Check using the real numbers.
15
$\underline{x} 3$
45

## Shoulder Partners

Thomas wanted to get a new bike. The bike cost $\$ 149.95$. As he walked to the bike section he found a helmet for 19.95 a light for 6.98 and a new lock for 12.00 . How much money did he spend at Target that day?

## Shoulder Partner

John ate I $2 / 3 \mathrm{bag}$ of potato chips and then ate $2 \mathrm{I} / 4 \mathrm{bag}$ of carrots. How many more bags of carrots did John eat then potato chips?

## Closure

* Write the four steps to solve estimation word problems.

