

Problem: Frankie and Lana are both selling candy for a school fundraiser. Frankie sells three boxes of chocolate in addition to \$12 worth of hard candies. Lana sells seven boxes of chocolate and brags that she has earned \$4 more than Frankie. How much does each box of chocolates cost?

$3b$

Frankie made \$4 less than Lana

Variable:

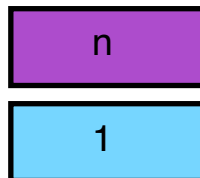
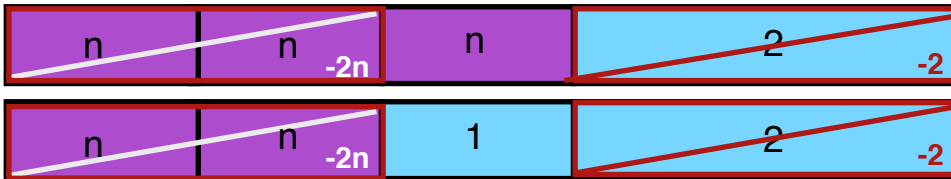
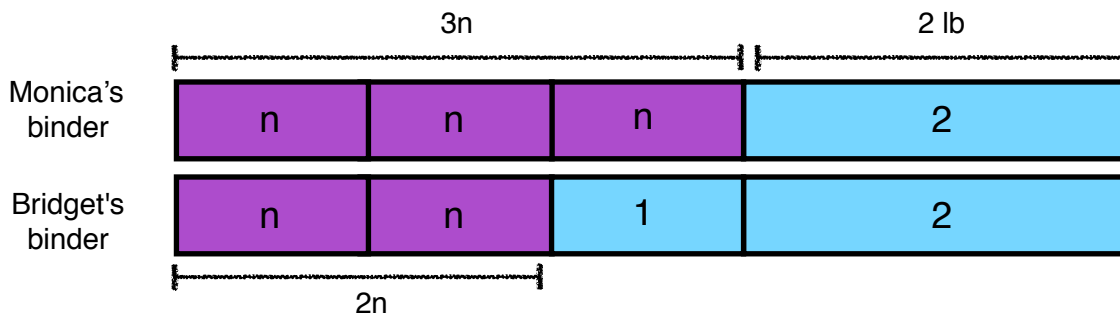
b = cost of one box of chocolate

Final Answer: 4 dollars

Problem: Monica and Bridget bought the same binders for school, and after filling them with school supplies, they weigh the same amount! Monica's binder contains a pencil pouch that weighs 2 pounds and 3 notebooks. Bridget's binder contains a stapler that weighs 1 pound, a pack of crayons that weighs 2 pounds, and 2 notebooks. How much does 1 notebook weigh?

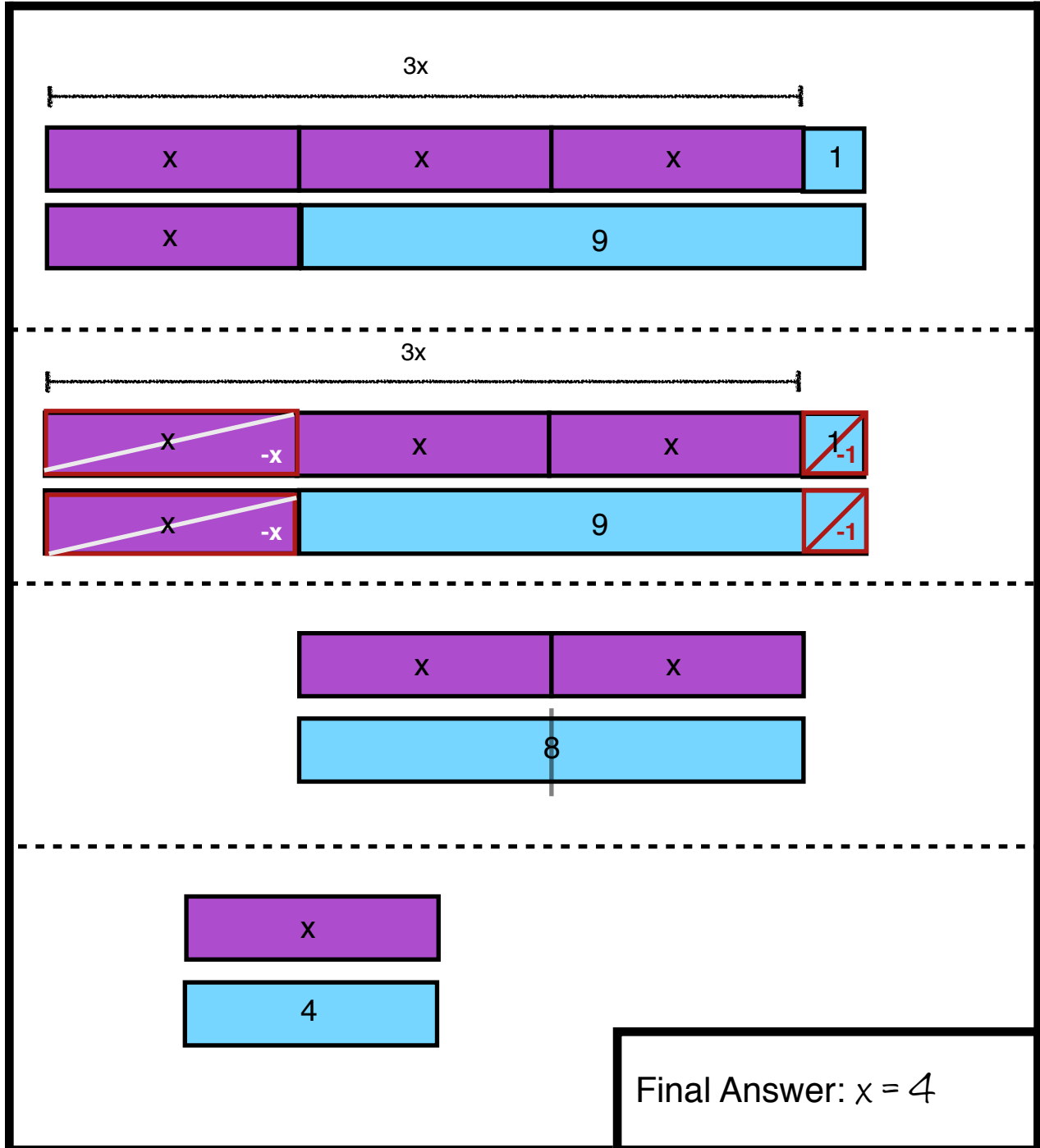
Variable:

n = weight of one notebook



Final Answer: 1 pound

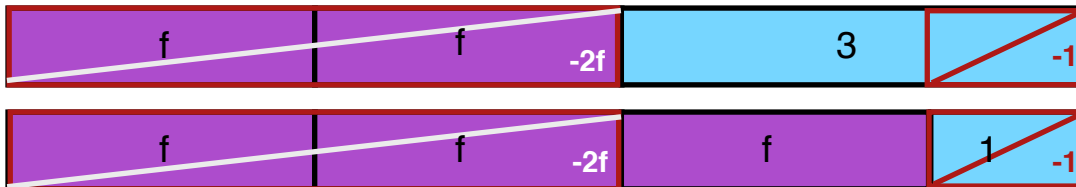
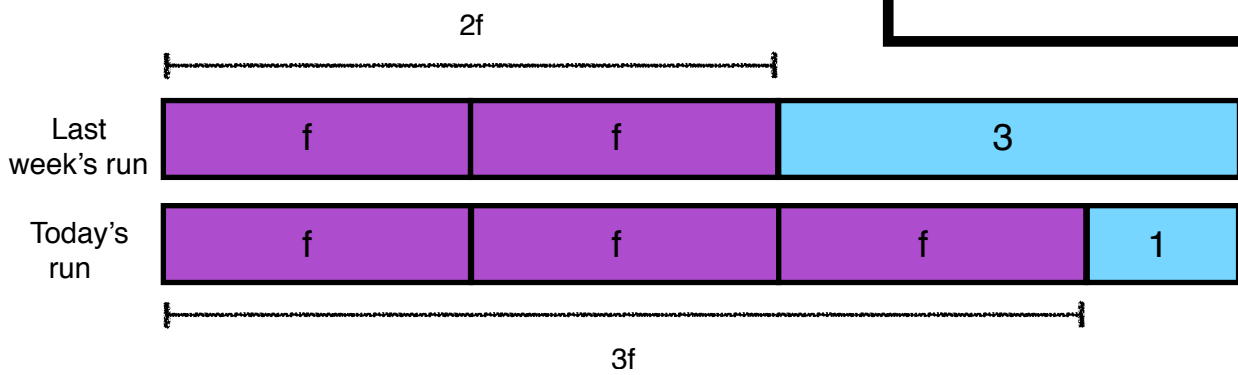
Problem: $3x+1=x+9$



Problem: Jimmy always goes on runs that are the same distance. Last week he went on a run where he ran his favorite trail 2 times and then ran 3 miles to the park. Today, he ran his favorite trail 3 times and then ran 1 more mile. How many miles is his favorite trail?

Variable:

f = miles of favorite trail



2

f

Final Answer: 2 miles

Problem: Samantha and Carlos wore braces for the same number of years. Samantha can't remember how many years her doctor said she would need braces for, but she knows she had braces for 3 years longer than the doctor expected. Carlos had braces for twice as long as Samantha was supposed to. How long was Samantha supposed to have braces for?

Variable:

s

 = time Samantha was supposed to have braces

Samantha

s

3

Carlos

s

s

}
2s

s

3

s

s

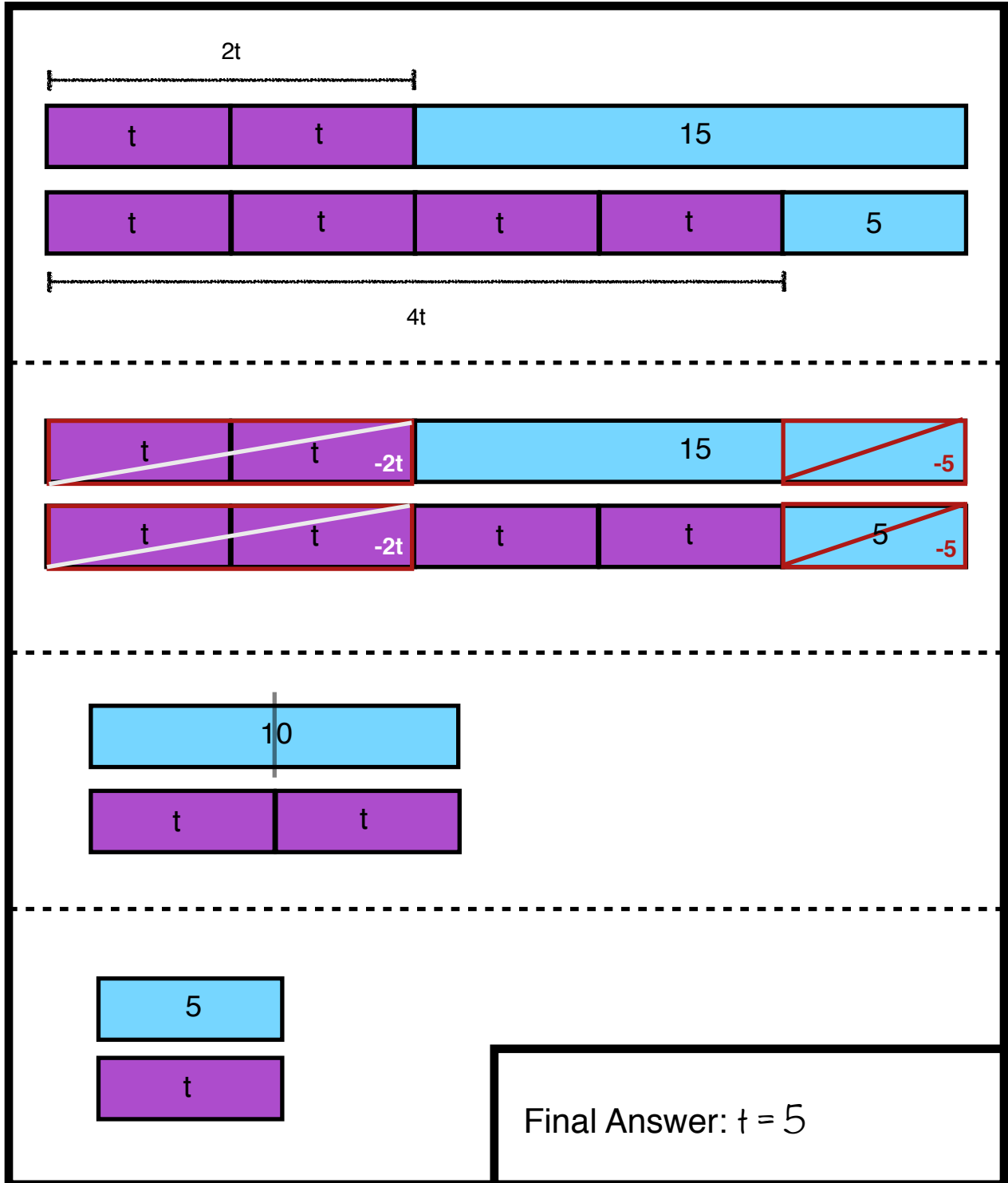
3

}

s

Final Answer: 3 years

Problem: $2t + 15 = 4t + 5$



Problem: In middle school, Frank and AJ went to the same number of dances. Frank went to 2 dances in 6th grade, and 3 dances in 7th grade. AJ didn't go to any dances 6th grade, and went to to 1 dance in 7th grade. In 8th grade AJ went to three times as many dances as Frank. How many dances did Frank go to in 8th grade?

Variable:
 x = dances Frank went to in 8th grade

Frank	x	2	3	
AJ	x	x	x	1
	$\underbrace{\hspace{15em}}_{3x}$			

Frank	x	5
AJ	$3x$	

x	5	$-x$	-1
$-x$	$3x$	1	-1

4	2
$2x$	x

Final Answer: 2 dances

Problem: Samantha and Elsa have the same number of photos on their phones, and all of their pictures are either selfies or pictures of their pet. Samantha's phone has 5 times as many selfies as Elsa's. Elsa's phone has 20 pictures of her dog, and Samantha's phone has 4 pictures of her cat. How many selfies does Elsa have on her phone?

Variable:

s = number of selfies Elsa has

$5s$

Samantha	s	s	s	s	s	4
Elsa	s	20				

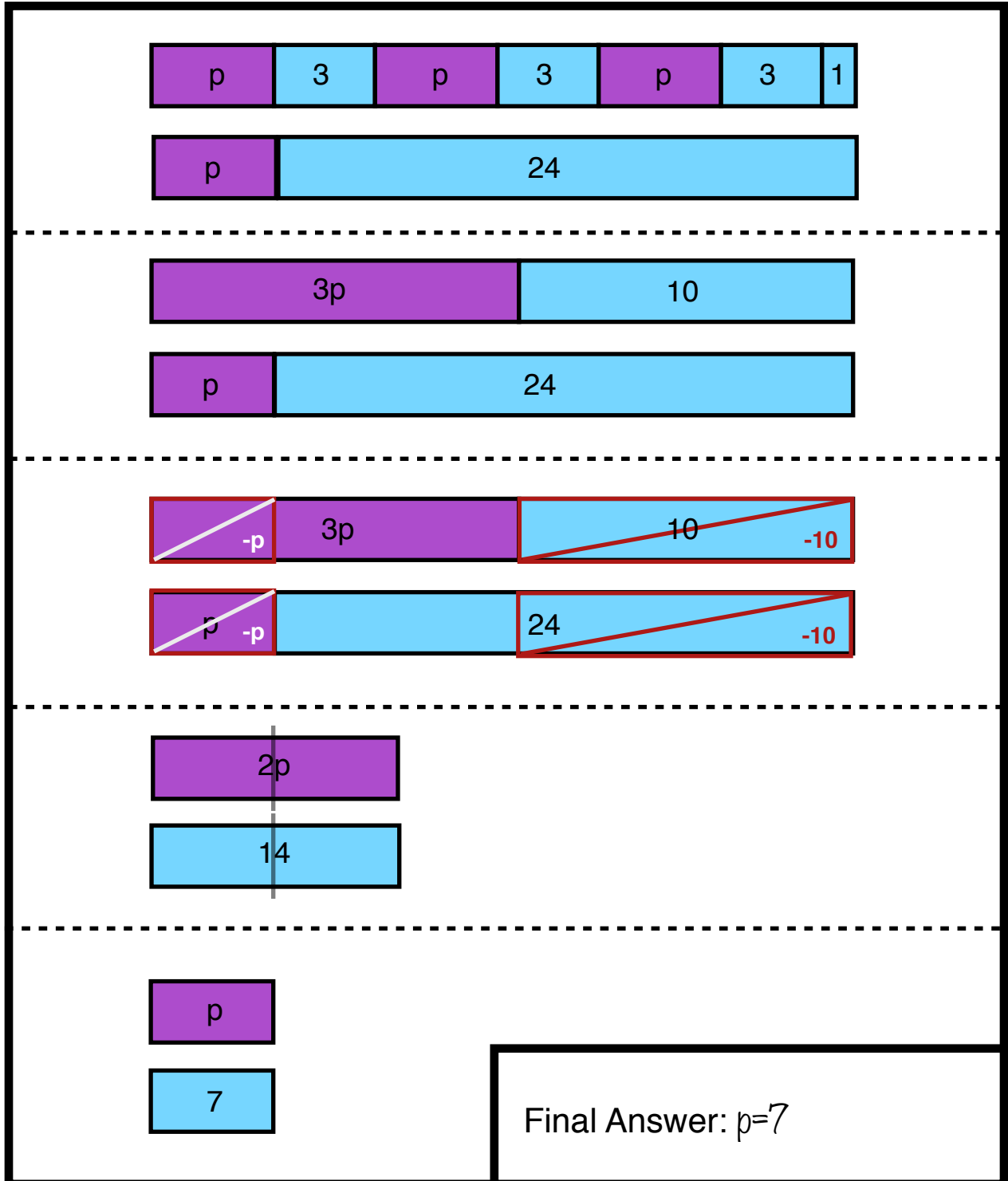
s	-s	s	s	s	s	s	4	-4
s	-s	20					-4	

s	s	s	s
		16	

s
4

Final Answer: 4 selfies


Problem: $3(p + 3) + 1 = p + 24$

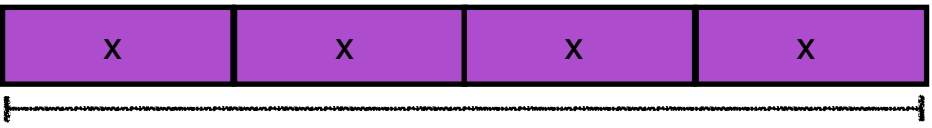


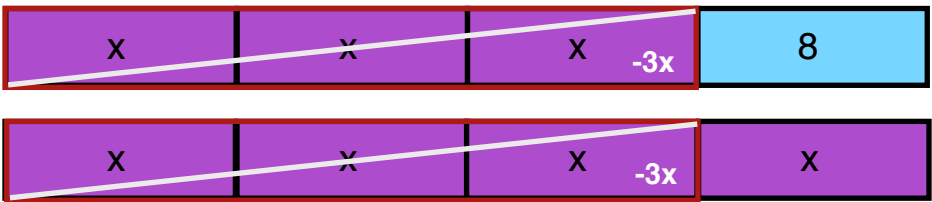
Problem: Every Friday, Lola has her friends over and they eat pizza rolls. Last week her friends made 3 boxes of pizza rolls and ate 5 pizza rolls that were leftover in the fridge. This week they ate 4 boxes of pizza rolls and ate 3 more rolls than they ate last week. How many pizza rolls are there in one box?

Variable:
 x = # pizza rolls in one box

$3x$ $+3$

Last week 

This week 



8

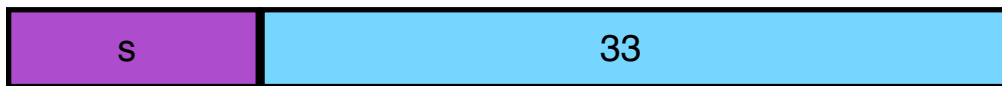
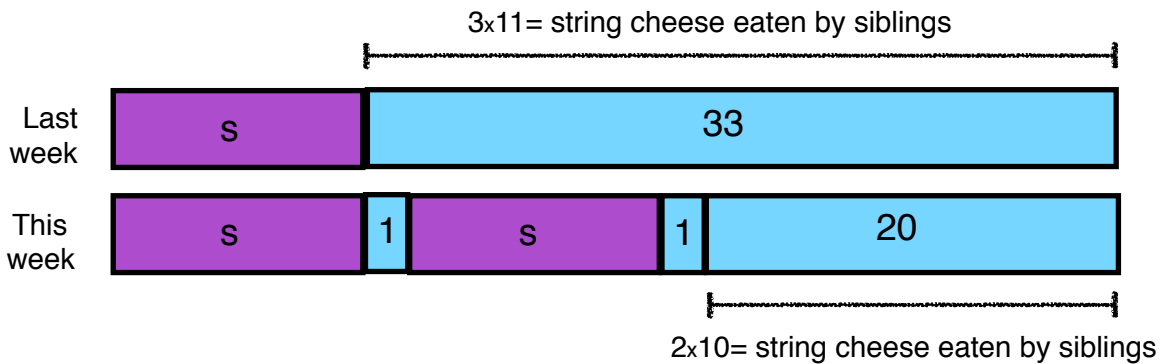
x

Final Answer: 8 pizza rolls in one box

Problem: Frank has eleven siblings, and they all like to eat cheese sticks. Their dad buys the same number of cheese sticks every week. Last week, Frank ate many cheese sticks, and each of his siblings ate three cheese sticks. This week, Frank and his sister Sofia *each* ate one more than Frank had eaten the week before, and each of their *other* siblings ate two cheese sticks. How many cheese sticks did Frank eat last week?

Variable:

s = # string cheeses Frank ate last week

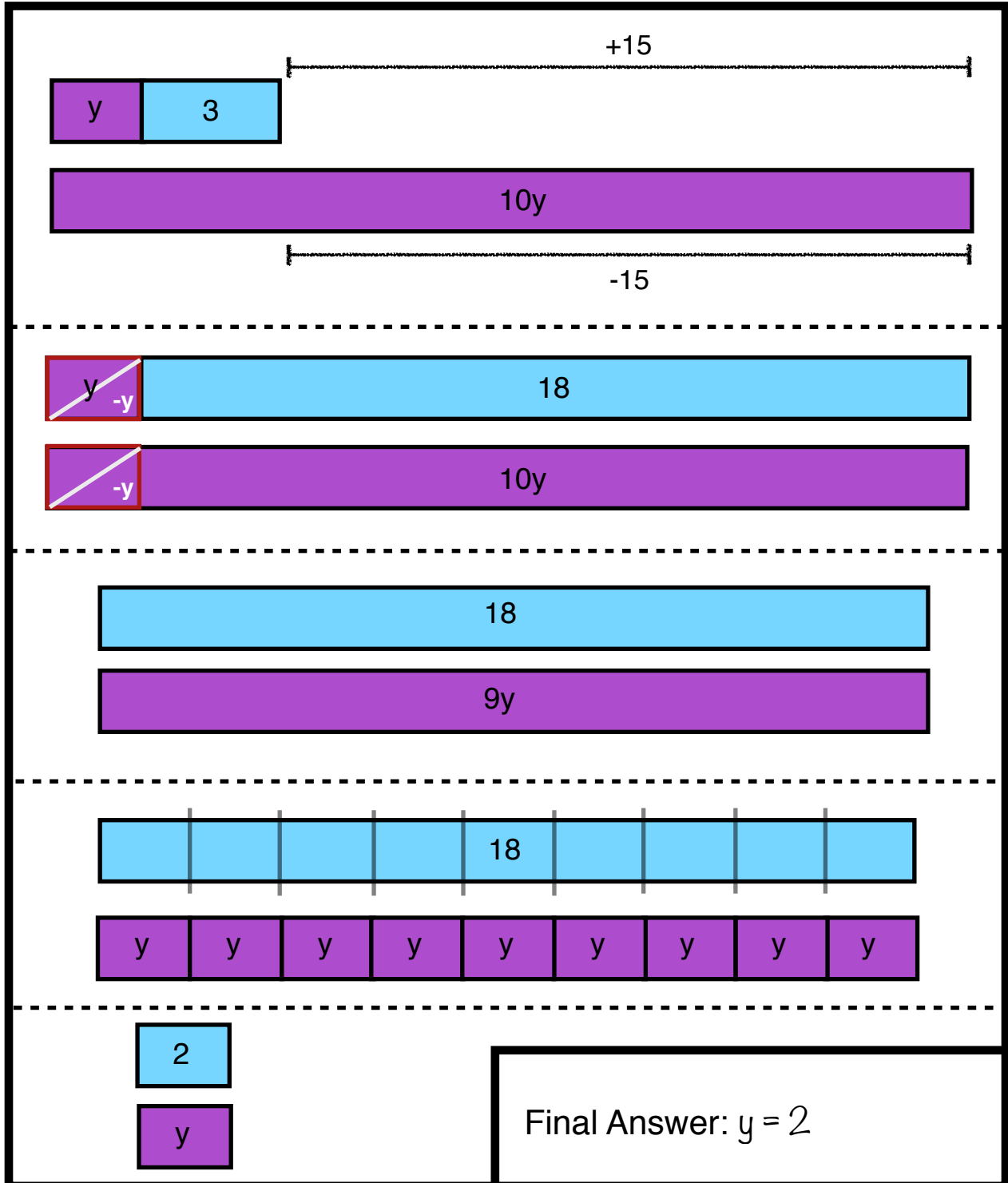


11

s

Final Answer: 11 string cheeses

Problem: $y + 3 = 10y - 15$



Problem: Gretchen plays the clarinet, and her teacher has a required amount of time that a practice session is supposed to last. Last week she practiced the required amount of time 6 times, and practiced for 30 extra minutes on Thursday. This week she practiced the required amount 5 times and practiced 90 minutes less this week than last week. How long does Gretchen’s teacher require that a practice session last?

Variable:
x = minutes required for practice session

$6x$

Last week: x x x x x x 30

This week: x x x x x

$5x$ $+90$

$6x$

30

$5x$

90

$6x$

~~30~~

~~-30~~

$5x$

~~$-5x$~~

90

~~-30~~

x

60

Final Answer: 60 minutes

Problem: Ron and Harry love to tell jokes. On Tuesday Ron told 3 jokes in each class period and Harry told 5 jokes in each class period. Ron also told 8 jokes during lunch, and Harry told 2 jokes during lunch. If they only told jokes during class and at lunch, and they both told the same number of jokes on Tuesday, how many class periods were there on Tuesday?

Variable:

x = # class periods Tuesday

x times

Ron

x times

Harry

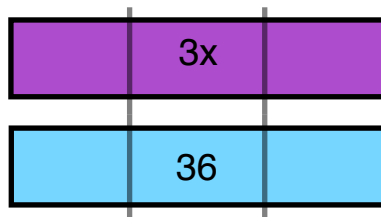
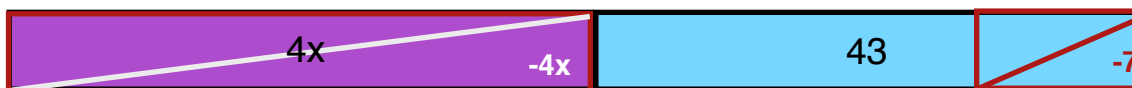
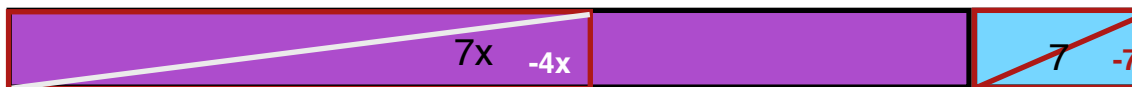
In every class period, Ron tells 3 jokes for Harry's 5 jokes. So Harry tells 2 more jokes every class period. I can use that to simplify the model!

Final Answer: 3 periods

Problem: $7(x+1) = 4x + 43$

drawing 7 “x” blocks and 7 “1” blocks is too much work, so I will use the distributive property to make it easier.

$$7(x+1) = 7x + 7$$



Final Answer: $x = 12$