Module 4 - Lesson 29:

Interpret, evaluate, and compare numerical expressions involving decimals.

CCSS Standard – 5.OA.A.1 / 5.OA.A.2

FLUENCY (10-min) **Whiteboard Exchange: Draw Geometric Figures**

On my signal, read the name of the figure and then draw an example of the figure on your whiteboard. Ready?

point A	ray BC	angle D	angle EFG

FLUENCY (10-min) **Whiteboard Exchange: Draw Geometric Figures**

On my signal, read the name of the figure and then draw an example of the figure on your whiteboard. Ready?

$\overrightarrow{AB}$	$\angle EDC$	point H	$\angle B$

FLUENCY (10-min) **Whiteboard Exchange: Unknown Angle Measures**

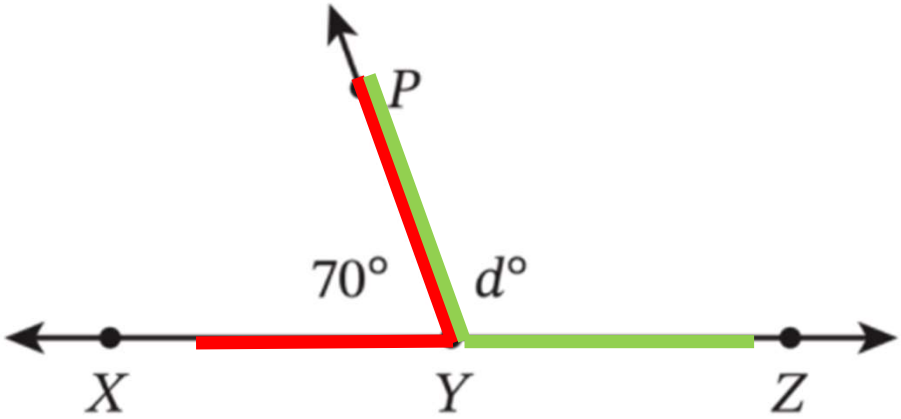
Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

∠XYZ is a **straight angle**.
How many **degrees** are in a straight angle?

180°

How many degrees are in ∠XYP? **70°**

What type of angle is ∠XYP? **acute**



Write a subtraction equation to find the measures of ∠**PYZ**. Write the measure of ∠PYZ.

What type of angle is ∠PYZ? **obtuse**

FLUENCY (10-min) **Whiteboard Exchange: Unknown Angle Measures**

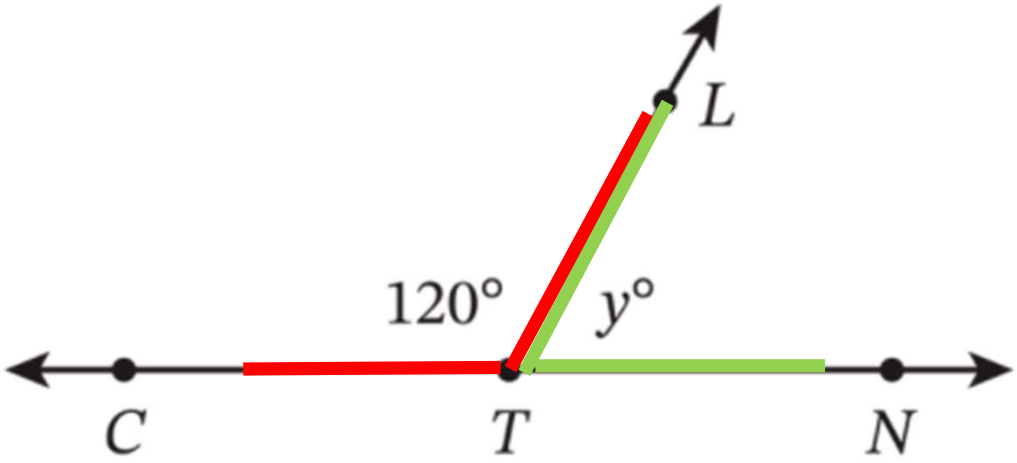
Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

∠CTN is a **straight angle**.
How many **degrees** are in a straight angle?

180°

How many degrees are in ∠CTL? **120°**

What type of angle is ∠CTL? **obtuse**



Write a subtraction equation to find the measures of ∠**LTN**. Write the measure of ∠LTN.

What type of angle is ∠LTN? **acute**

FLUENCY (10-min) **Whiteboard Exchange: Unknown Angle Measures**

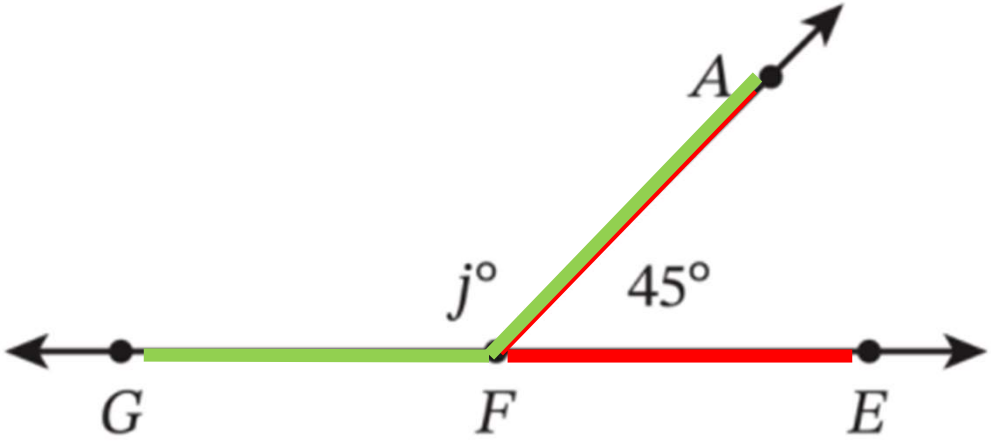
Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

∠GFE is a **straight angle.**
How many **degrees** are in a straight angle?

180°

How many degrees are in ∠AFE? **45°**

What type of angle is ∠AFE? **acute**

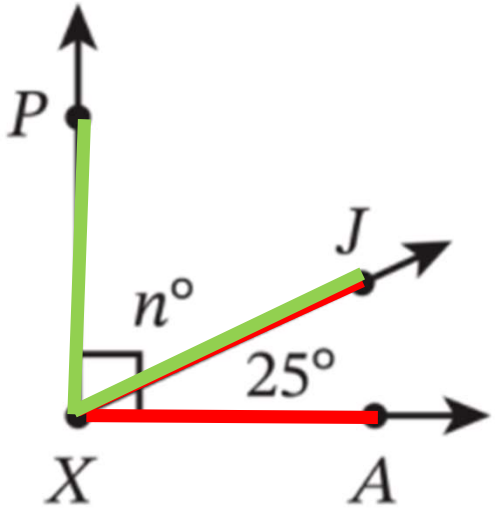


Write a subtraction equation to find the measures of **∠AFG**. Write the measure of ∠AFG.

What type of angle is ∠AFG? **obtuse**

FLUENCY (10-min) **Whiteboard Exchange: Unknown Angle Measures**

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.



∠PXA is a **right angle**.
How many **degrees** are in a right angle?

90°

How many degrees are in ∠JXA? **25°**

What type of angle is ∠JXA? **acute**

Write a subtraction equation to find the measures of **∠PXJ**. Write the measure of ∠PXJ.

What type of angle is ∠PXJ? **acute**

LAUNCH (10-min)

How to correctly model the operations represented in a tape diagram with an expression.

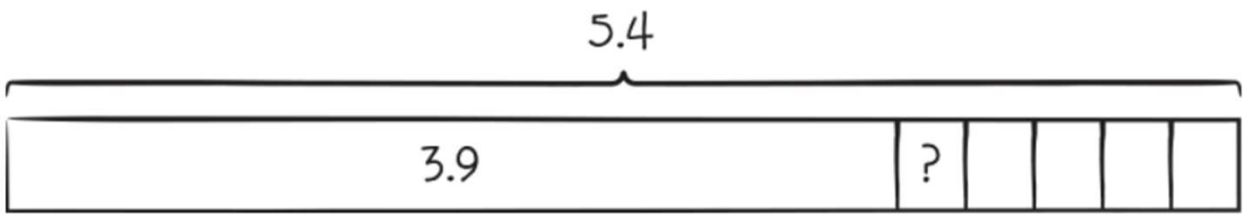
Adesh has a total of 5.4 meters of rope.

He uses 3.9 meters of rope for a tire swing.

He uses the remaining rope to hang 5 bird feeders.

He uses the same amount of rope to hang each bird feeder.

How much rope does Adesh need to hang 1 bird feeder?



$5.4 \div 5 - 3.9$

First, read the word problem several times to yourself to understand what it is asking you to solve.

Now, I am going to show you how a student (Blake), represented the word problem with a tape diagram.
TURN & TALK: Does the tape diagram represent the situation in the word problem?

Blake used this expression to solve the problem.
TURN & TALK: Does the expression solve the problem? Why or why not?

No! Blake divided 5.4 by 5 and then subtracted 3.9. He should have subtracted **3.9 from 5.4 first and then divided the difference by 5.**

LAUNCH (10-min)

How to correctly model the operations represented in a tape diagram with an expression.

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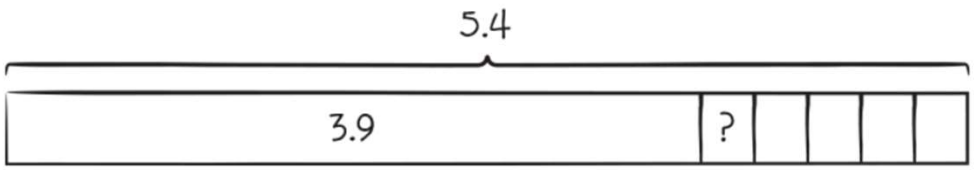

$5.4 \div - 3.9$

$5.4 - (3.9 \div 5)$

OK, Blake understands that his expression is not correct, so he made an adjustment this time using parentheses. Is he correct now?

No! Blake put the parentheses in the wrong place. He divided 3.9 by 5 but 3.9 is not being divided by five in the tape diagram!

Can YOU write a correct expression and solve the problem?

$$(5.4 - 3.9) \div 5$$

$$1.5 \div 5$$

0.3 meters

LEARN (30-min) **Numerical Expressions with Decimals: Problem Set**

Today you will be working at stations around the room. Your task is to complete the prompt at each station using page 267 of your LEARN book. You will rotate through the stations on my call.
Let's read each station prompt before we begin.

Station 1

Draw a tape diagram and write an expression to represent the following statement. Then evaluate your expression.

Twice the sum of 2.56 and 0.74

Station 2

Write a statement and expression to represent the tape diagram. Then evaluate your expression.

1.92	0.8	1.92	0.8	1.92	0.8	1.92	0.8

Station 3

Draw a tape diagram and write an expression to represent the following statement. Then evaluate your expression.

The sum of three 2.07s and five 0.9s

LEARN (30-min) Numerical Expressions with Decimals: Stations

LEARN book page 267.

Station 4

Each player on Tyler's soccer team buys socks that cost $4.95 and a shirt that costs $12.29. There are 14 players on Tyler's soccer team. Tyler says that the expression $14 \times 4.95 + 12.29$ models the total cost of the socks and shirts for the team.

a. Explain Tyler's error.

b. Write an expression that correctly models the total cost of socks and shirts for the team.

c. Evaluate the expression you wrote in part (b) to find the total cost of socks and shirts for the team.

Station 5

Julie forgot to put parentheses in each of her equations. Write parentheses to make each of her equations true.

$4 \times 2.2 - 0.3 = 7.6$

$3.22 = 5.2 + 1.24 + 2$

$3.1 + 0.5 \times 2 + 1.7 = 8.9$

Station 6

Use $>$, $=$, or $<$ to compare the expressions.

a. $(2.7 + 1.09) \times 0.85$ _____ $1.04 \times (2.7 + 1.09)$

b. $(1.4 - 0.8) \times (6.65 + 0.5)$ _____ $(6.65 + 0.5) \times (0.3 + 0.3)$

c. $(6.1 \times 7) + (0.2 \times 9)$ _____ $(0.4 \times 9) + (8.3 \times 7)$

LEARN (30-min)

Possible Solution for Station 1:

Station 1
Draw a tape diagram and write an expression to represent the following statement. Then evaluate your expression. Twice the sum of 2.56 and 0.74

2.56	0.74	2.56	0.74

Key words:

"Twice" - times by 2

"Sum" - addition

2 x (2.56 + 0.74) =

2 x (3.30) =

6.6

LEARN (30-min)

Possible Solution for Station 2:

Station 2

Write a statement and expression to represent the tape diagram. Then evaluate your expression.

1.92	0.8	1.92	0.8	1.92	0.8	1.92	0.8

4 times the sum of 1.92 and 0.8

4 x (1.92 + 0.8) =

4 x 2.72

= 10.88

LEARN (30-min)

Possible Solution for Station 3:

Station 3
Draw a tape diagram and write an expression to represent the following statement. Then evaluate your expression. The sum of three 2.07s and five 0.9s

Key words:

"Sum" – addition

"three 2.07s"

"five 0.9s"

2.07	**2.07**	**2.07**	**0.9**	**0.9**	**0.9**	**0.9**	**0.9**

(3 x 2.07) + (5 x 0.9) =

6.21 + 4.5 =

10.71

LEARN (30-min)

Possible Solution for Station 4:

Station 4
Each player on Tyler's soccer team buys socks that cost $4.95 and a shirt that costs $12.29. There are 14 players on Tyler's soccer team. Tyler says that the expression $14 \times 4.95 + 12.29$ models the total cost of the socks and shirts for the team. a. Explain Tyler's error. b. Write an expression that correctly models the total cost of socks and shirts for the team. c. Evaluate the expression you wrote in part (b) to find the total cost of socks and shirts for the team.

a. **Tyler multiplied only the cost of the socks by 14, he then added the cost of the shirt. He should have multiplied the SUM of socks and shirt by 14.**
b. **14 x ($4.95 + $12.29)**
c. **14 x ($17.24) = $241.36**

LEARN (30-min)

Possible Solution for Station 5:

Station 5
Julie forgot to put parentheses in each of her equations. Write parentheses to make each of her equations true. $4 \times 2.2 - 0.3 = 7.6$ $3.22 = 5.2 + 1.24 \div 2$ $3.1 + 0.5 \times 2 + 1.7 = 8.9$

$4 \times (2.2 - 0.3) = 7.6$

$3.22 = (5.2 + 1.24) \div 2$

$(3.1 + 0.5) \times 2 + 1.7 = 8.9$

LEARN (30-min) **Possible Solution for Station 6:**

Station 6

Use $>$, $=$, or $<$ to compare the expressions.

a. $(2.7 + 1.09) \times 0.85$ $<$ $1.04 \times (2.7 + 1.09)$

b. $(1.4 - 0.8) \times (6.65 + 0.5)$ $=$ $(6.65 + 0.5) \times (0.3 + 0.3)$

c. $(6.1 \times 7) + (0.2 \times 9)$ $>$ $(0.4 \times 9) + (8.3 \times 7)$

LAND (10-min) **Exit Ticket**

Name _____ Date _____

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1. Write an expression to represent the statement.

   2 times as much as the difference of 1.02 and 0.98

2. Write one pair of parentheses to make the equation true.

   $9.5 \times 4.3 + 7.8 + 5.9 = 54.55$

3. Use >, =, or < to compare the expressions. Explain how you can compare the expressions without evaluating them.

   $(3.2 + 2.1) \times (5.3 - 4.1)$ _____ $(6.3 - 4.1) \times (3.2 + 2.1)$

   Explain:

Exit Ticket – PAGE 273

Small Group Time:
Problem Set Page 269 - 272

Homework:
Page 183 APPLY BOOK