Do Now:
Solve the inequality. Then graph the solution.

$$\frac{1}{4}z - 5 \le -\frac{1}{5}z$$

Do Now:
Solve the inequality. Then graph the solution.
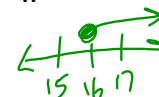
1) 2y - 3 ≤ -5
$y \le -1$ -2 -1 0

2) -3x + 7 > 4x + 21
$x < -2$ -3 -2 -1

3) 3w - 11 ≥ 53 - w
$w \ge 16$ 15 16 17

German is organizing a bowling night for the wrestling squad. Each ticket costs $10 and includes shoe rental. Shoes cost him $5 per pair and door prizes cost him $50.
How many people need to attend for German to raise at least $200?

Hint:

Ticket Sales - Costs $=$ Profit

$<$
$\le$
$>$
$\ge$

6.6 Problem Solving and Inequalities

7.NS
7.EE

• SWBAT use multi-step inequalities to solve real-world problems.
• SWBAT represent and analyze situations using algebraic symbols.

Calculators: Yes

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a < b	a > b
a (is) less than b	a (is) greater than b
a (is) fewer than b	a (is) more than b

a ≤ b	a ≥ b
a (is) less than or equal to b	a (is) greater than or equal to b
a (is) at most b	a (is) at least b
a (is) no more than b	a (is) no less than b

Write the sentence as an inequality. Then solve the inequality.

1) A number plus 2 is at most 6.

$$x + 2 \le 6$$
$$-2 \quad -2$$
$$\boxed{x \le 4}$$

Write the sentence as an inequality. Then solve the inequality.

2) Nine is less than a number plus 1

$$9 < x + 1$$
$$-1 \qquad -1$$
$$8 < x$$
$$\boxed{x > 8}$$

Write the sentence as an inequality:

1) Six times the difference of a number and 3 is more than 24.

$$6 \cdot (x - 3)$$

6x-3
BAD

$$6(x - 3) > 24 \qquad \boxed{6(x-3) > 24}$$
$$6x - 18 > 24$$

Write the sentence as an inequality:

$9 \qquad + \qquad 4x \qquad \geq$

2) Nine more than 4 times a number is at least 30 less than 11 times the number.

← Subtraction →

$9 + 4x \geq 11x - 30$

Write the sentence as an inequality:

3) Three times a number divided by 4 is no more than 5 plus twice the number.

$3x \div 4 \leq 5 + 2x$

$\dfrac{3x}{4} \leq 5 + 2x$

$3(x \div 4) \leq 5 + 2x$ (No Dist. Prop)

Individual tickets for a college basketball game cost $8 each plus a one-time transaction fee of $5. Daevon can buy a season ticket for $99. How many games would he have to attend so that a season ticket is better value than individual tickets?

less money spent

Season Ticket $<$ Individual Ticket

$99 < 5 + 8t$

$\quad -5 \qquad -5$

$\overline{94 < 8t}$

$\dfrac{8t}{8} > \dfrac{94}{8}$

$t \geq 11.75$

12 or more tickets

Membership in a dance group costs $25 per year. Dances costs $8 for members and $10 for non-members. How many dances would Zora have to attend so that buying a membership is a better value than being a non-member?

less money spent

Membership $<$ Non-membership

$25 + 8d < 10d$

$\quad -8d \qquad -8d$

$\dfrac{25}{2} < \dfrac{2d}{2}$

$12.5 < d$ → 12 dances

$d > 12.5$ → 13 dances

13 or more dances

Donye sells personalized bumper stickers. He buys blank stickers for $0.10 each and he spends $1200 for software and a special printer. How much should Donye sell each printed bumper sticker for if he wants to break even after selling 300 stickers?

$$\text{Sold Stickers} \geq \text{Cost of Stickers}$$

$$300x \geq 1200 + 0.10(300)$$

$$300x \geq 1200 + 30$$

$$\frac{300x}{300} \geq \frac{1230}{300}$$

$$x \geq 4.1$$

$4.10 or more

Exit Pass 6.6   Subtraction

Explain the difference between 3 *less than* a *number* and 3 *is less than* a number. $x - 3$

$$3 < x$$ inequality

"Don't blame the sea if you cannot catch a fish."

Working individually or with a partner, complete the workbook.

Workbook pg. 87 #1-12 all

Reflection of Today's Lesson

6.6 Problem Solving and Inequalities

7.NS
7.EE

• SWBAT use multi-step inequalities to solve real-world problems.
• SWBAT represent and analyze situations using algebraic symbols.

Calculators: Yes

Homework

pg. 304 #6-13, 16, 17

Classwork

1. Individual tickets for a college hockey game cost $12 each plus a one-time transaction fee of $8. Shane can buy a season ticket for $125. How many games would he have to attend so that a season ticket is better value than individual tickets?

Classwork

2. Write the sentence as an inequality. Then solve the inequality.
1) A number plus 5 is greater than 9.

2) Four times a number is less than 28.

Classwork
3. Write the sentence as an inequality:

a) Seven times the difference of a number and 10 is at least 30.

b) Ten less than 6 times a number is less than 2 times the number.

c) The quotient of 5 times a number and 2 is no more than 6 plus 3 times the number.