6.2: Solve Inequalities Using Multiplication and Division

Goals:
*Solve Inequalities Using Multiplication and Division

- Be aware of when to reverse the inequality sign.

NEW RULE!!!!!!!!!!
IF YOU
MULTIPLY or DIVIDE $\underline{\boldsymbol{B} \boldsymbol{Y}}$ A NEGATIVE, you must reverse the inequality sign!
$>$ becomes <

Solve and graph each inequality:
Ex: $\quad 5 \cdot \frac{x}{4}<5 \cdot 5$
Ex: $3 \cdot \frac{x}{3}>8 \cdot 3$
Ex: $-8 \cdot \frac{m}{-8} \leq-2 \cdot-8$
$x<20$
$x>24$
$m \geq 16$

Ex: $2.5 \cdot \frac{y}{2.5} \geq-4 \cdot 2.5$
Ex: $-6 \cdot \frac{x}{-6}<7 \cdot-6$
Ex: $\frac{-3 x>24}{-3-3}$
$y \geq-10$
$x>-42$
$x<-8$

Ex: $7 \cdot \frac{y}{7} \geq-4.7$

$$
\text { Ex: } \frac{-6 x \leq 18}{-6-6}
$$

Ex: $\frac{5 v \leq-45}{5}$
$y \geq-28$
$x \geq-3$
$v \leq-9$

Ex: $-4 \cdot 12<\frac{x}{-4} \cdot-4$
$-48>x$
$x<-48$


Ex: $-7 \cdot 16>\frac{m}{-7} \cdot-7$
$-112<m$
$m>-112$


Ex: $24 \geq-6 n$

$$
-4 \leq n
$$

$$
n \geq-4
$$



Ex: A student pilot plans to spend 80 hours on flight training to earn a pilot's license. The student has saved $\$ 6000$ for training. Write an inequality to represent $r$, the hour rate the student can afford to pay. What are the possible hourly rates?

$$
\begin{aligned}
\frac{80 r}{80} & \leq \frac{6000}{80} \\
r & \leq 75
\end{aligned}
$$

This means that the student could afford to pay an hourly rate of $\$ 75$ or less for flight training.

