Mat 011 Agenda Day 11       June 6, 2005

Return Quiz 4
Review for Test 2

Test 2

Homework: Read Topic 19
CPS System
Find the percent increase.

\[ \frac{\text{New} - \text{Old}}{\text{Old}} = \frac{3.4 - 1.6}{1.6} = \frac{1.8}{1.6} \]

\[ 1.125 \]

\[ 112.5\% \]
Find the percent increase.

<table>
<thead>
<tr>
<th>Year</th>
<th># of Cars Sold</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>1.6 million</td>
</tr>
<tr>
<td>1990</td>
<td>3.4 million</td>
</tr>
</tbody>
</table>

\[
\text{Increase} = \frac{\text{New} - \text{Old}}{\text{Old}}
\]

\[
= \frac{3.4 - 1.6}{1.6} = \frac{1.8}{1.6} = 1.125 = 112.5\%
\]
Find the average rate of change.

<table>
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</tbody>
</table>

\[ m = \text{slope} = \frac{\text{rise}}{\text{run}} = \frac{3.4 - 1.6}{1990 - 1980} = \frac{1.8}{10} \]

\[ 0.18 \text{ million cars per year} \]
Graph using intercepts: \( y = \frac{-2}{3} x + 4 \)

To find the y intercept, let \( x = 0 \)

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>

Let \( x = 0 \)

\[ y = 4 \]

\[ y = -\frac{2x}{3} + 4 \]

\[
3(0) = \left( -\frac{2x}{3} \right) + 4 \]

\[
0 = -\frac{2x}{3} + 4 \]

\[
12 = -2x \]

\[
-6 = x \]
\[ y = -\frac{2}{3}x + 4 \]

\[ 0 = -\frac{2x}{3} + 4 \]

\[
3 \left( \begin{array}{c}
-4 \\
1
\end{array} \right) = 3 \left( \begin{array}{c}
-2x \\
3
\end{array} \right) \\
-12 = -6x \\
6 = -x
\]
\[ y = \frac{-2}{3} x + 4 \]
Graph using intercepts

$21x + 0.03y = 46$
$$21x + .03y = 46$$

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1533.3</td>
</tr>
<tr>
<td>2.2</td>
<td>0</td>
</tr>
</tbody>
</table>
Inequalities

Solve for \( x \): \( 6 - 3x \leq 7 \)

\[
\begin{align*}
6 - 3x & \leq 7 \\
-6 & \quad -6 \\
\hline
-3x & \leq 1 \\
\frac{-3}{-3} & \quad \frac{1}{-3} \\
\Rightarrow \quad x & \geq \frac{1}{3}
\end{align*}
\]

\( x \geq \frac{1}{3} \)
Inequalities

Solve for $x$: $-2 < 4 + 3x \leq 10$
A person's intelligence quotient (IQ) is determined by the formula
\[ IQ = \frac{M \cdot 100}{A} \]
where \( M \) is the mental age (computed by taking a test) and \( A \) is the age of the person. A group of 15 year olds have an IQ range from 95 to 165. Find the range of the students’ mental age.
Two companies, MONTCO and DELCO, offer very similar jobs. MONTCO pays $30,000 a year while DELCO pays $20,000 a year plus 10% commission.

Let $S =$ sales

$W_M = \text{30,000}$

$W_D = .10 S + 20,000$
WA = 30,000

\[ m_d = 0.1 = \frac{1}{10} \]

\[ w_m = 30,000 \]

\[ m_m = 0 \]
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\[
\frac{5}{9} = \frac{60 \text{ inches}}{108 \text{ inches}} = 0.55
\]

U-Haul 5 feet for horizontal 9 ft

Try 3 inch rise for 8 inch

\[
\frac{3}{8} = 0.375
\]

\[
\frac{1}{3} \quad \frac{5}{9}
\]

\[
\frac{8}{9}
\]
\[ W_M = W_D \]

\[ 30,000 = 0.10S + 20,000 \]

\[ 10,000 = 0.10S \]

\[ \frac{100,000}{10} = S \]
Two companies, MONTCO and DELCO, offer very similar jobs. MONTCO pays $30,000 a year while DELCO pays $20,000 a year plus 10% commission. What do the y-intercepts mean?
Two companies, MONTCO and DELCO, offer very similar jobs. MONTCO pays $30,000 a year while DELCO pays $20,000 a year plus 10% commission.

When does MONTCO pay more than DELCO?
Two companies, MONTCO and DELCO, offer very similar jobs. MONTCO pays $30,000 a year while DELCO pays $20,000 a year plus 10% commission. What does the slope of each line mean in terms of the problem?