

Pre-Calculus 2.8

Analyzing a Function Bell Ringer Hagen #1

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Homework questions 2.7 #2

41) WORK problems
 $B \cdot 2.6 + 4.75 = 4.5 \cdot B + 2.6$
 $A) \cdot 4.75 + \frac{1}{B} = \frac{1}{2.6} + 4.5 \cdot B + 2.6$

$$\begin{array}{r} 2.6B + 12.35 = 4.5B \\ -2.6B \qquad \qquad -2.6B \end{array}$$

$$\frac{12.35}{2.15} = \frac{2.15B}{2.15}$$

$$5.744 = B$$

hrs.

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$$y_1 = B \cdot \left(\frac{1}{4.75} \right) + \left(\frac{1}{x} \right)$$

$$y_2 = \frac{1}{2.6}$$

5.744 hrs.

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42) $d = r \cdot t$
 $\frac{d}{r} = \frac{r \cdot t}{r}$
 $t = \frac{d}{r}$

bike	+	car	
$\frac{17}{x}$	+	$\frac{53}{x+43}$	$\frac{12}{3}$

$$\frac{17}{x} + \frac{53}{x+43} = \frac{5}{3}$$

$$17(x+43) + 53 \cdot 3 \cdot x = x(x+43)$$

$$y_1 = \left(\frac{17}{x} \right) + \left(\frac{53}{x+43} \right)$$

$$y_2 = \frac{5}{3}$$

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47) $\frac{x}{1} - \frac{3x}{x+2} = \frac{6}{x+2}$

$$x(x+2) - 3x = 6$$

$$x^2 + 2x - 3x - 6 = 0$$

$$x^2 - x - 6 = 0$$

$$(x-3)(x+2)$$

$x=3$

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41) $\frac{x - \frac{3x}{x+2}}{1} = \frac{6}{x+2}$

$$y_1 = x - \frac{(3x)}{(x+2)}$$

$$y_2 = \frac{6}{(x+2)}$$

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35

$A = L \cdot W$
 $\frac{182}{L} = \frac{L \cdot W}{L}$
 $\frac{182}{L} = W$

$P = L + 182 + L + 182$
 $P = 2L + \frac{364}{L}$

length 13.5 ft
 width 13.5 ft
 min Perimeter 54 ft

(13.5, 54)

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2.8 Inequalities : X-values where the function is above, below the x-axis

$>$ Greater than: Above the x-axis
 Not equal to, open circle, parenthesis

$<$ Less than: Below the x-axis
 Not equal to, open circle, parenthesis

\leq Less than or equal to: Below
 Closed circle, bracket

\geq Greater than or equal to: Above
 Closed circle, bracket

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Part 1 Radical and Polynomial Inequalities:
 Set each part equal to zero, or find the x-intercepts.

$(x+1)(x-3)^2 > 0$ greater +

$x+1=0$ $x-3=0$
 $x=-1$ x-int $x=3$ x-int

Make a sign chart

Determine if you want the pos/neg and write your answer in interval notation.

pos: $(-1, 3) \cup (3, \infty)$

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$x^3 - 4x^2 + x + 6 \leq 0$

Step 1: Find the x-intercepts $x=-1$ $x=2$ $x=3$

Step 2: Create a sign chart

Step 3: Determine if you want pos/neg

$(-\infty, -1] \cup [2, 3]$

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Part 2: Rational Inequalities $\frac{x-2}{x+3} > 0$

When it is a fraction find the x-intercepts and the asymptotes

x-int: Set the top equal to zero
 asymp: Set the bottom equal to zero.

$\frac{x-2}{x+3} = 0$ $\frac{x-2}{x+3} = 0$
 $x-2=0$ $x+3=0$
 $x=2$ $x=-3$
 parenthesis parenthesis

$(-\infty, -3) \cup (2, \infty)$

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45 $\frac{x^3(x-2)}{(x+3)^2} < 0$ $(0, 2)$

x-int $x=0$ $x=2$ asymp $x=-3$

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