Bellwork - Khan Academy

Subject --> SAT --> Practice --> Math -->

Problem Solving and Data Analysis -->

Ratio, Rates and Proportions -->

Practice - do 5 questions. Must show me,
this one I can't see from my side of program.

$$\frac{a}{b} = \frac{c}{d}$$

Sec 2.4 Remainder Theorem

If f(x) is divided by (x - k), then the remainder is r = f(k).

ex. Find the remainder when
$f(x) = 3x^2 + 7x - 20$ is divided by $x - 2$

$$2 \overline{)\begin{array}{ccc} 3 & 7 & -20 \\ & 6 & 26 \end{array}}$$
$$\begin{array}{ccc} 3 & 13 & \boxed{6} \end{array} \quad R = f(2) = 6$$

$f(2) = 3(2)^2 + 7(2) - 20$
$12 + 14 \ -20 = \boxed{6}$

1

ex. Find $f(2)$ given $f(x) = 2x^3 - 3x^2 + 4x - 7$

$$2\,|\;\begin{array}{rrrr} 2 & -3 & 4 & -7 \\ & 4 & 2 & 12 \\ \hline 2 & 1 & 6 & \boxed{5} \end{array}$$

$5 = f(2)$

Factor Theorem - A polynomial function
$f(x)$ has a factor $x - k$ iff $f(k) = 0$

if and only if $\Longleftrightarrow$

Remainder is 0
then $(x-k)$ is
a factor

ex. Is $(x+4)$ a factor of $3x^2 + 7x - 20$?

$x + 4 = 0$
$x = -4$

$(x + 4)(3x - 5)$

$$-4\,|\;\begin{array}{rrr} 3x^2 & 7 & -20 \\ & -12 & 20 \\ \hline 3x & -5 & 0 = R \end{array}$$

ex. Is x-1 a factor of $x^3 - x^2 + x - 1$?

$$\begin{array}{r|rrr} 1 & 1x^3 & -1 & 1 & -1 \\ & & 1 & 0 & 1 \\ \hline & 1x^2 & +0x & +1 & 0 \end{array}$$

$(x-1)(x^2+1)$

0 yes factor

$f(1) = (1)^3 - (1)^2 + (1) - 1$

$\quad\quad 1 - 1 + 1 - 1$

$\quad\quad\quad 0 + 0 = 0$

assignment: on MyMathLab "sec 2.4 day 2"