STEM-ersion

w/Rational Functions

Name _____

Date _____

Eduardo works at a large hospital where his job is to administer anesthesia for surgery. Given a patient's sensitivities, he has to order a variety of anesthesia in various doses. The concentration of the drug in the bloodstream (in mg/L) is modeled by a function where t is minutes since receiving the drug. When the concentration drops below 0.1 mg/L the patient may become conscious. Additional anesthesia <u>must be administered one half hour prior to reaching this level</u>.

Eduardo must write a note to the anesthesiologist who is taking over after his shift. He likes to provide specific directions about who needs more anesthesia and when.

	Patient A	Patient B	Patient C	Patient D	Patient E
Model	$A(t) = \dfrac{8t}{0.3t^2+4.1}$	$B(t) = \dfrac{7t}{0.4t^2+5.3}$	$C(t) = \dfrac{5.5t}{0.2t^2+2.1}$	$D(t) = \dfrac{4.9t}{0.1t^2+3.2}$	$E(t) = \dfrac{10.2t}{0.3t^2+3.9}$
Time Administered	5:04	5:17	5:32	5:51	6:08

Use this space to make any calculations and show work.

Evidence

Analysis
of the evidence

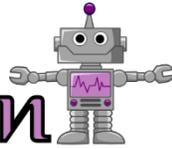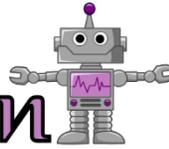Interpret the Evidence. What does it mean?

Conclusion
or Recommendation

STEM-ersion

w/ Rational Functions

Anesthesiologist

Eduardo works at a large hospital where his job is to administer anesthesia for surgery. Given patient sensitivities, he has to order a variety of anesthesia in various doses. The concentration of the drug in the blood (in mg/L) is modeled by a function where t is minutes since receiving the drug. When the concentration drops below 0.1 mg/L the patient may become conscious. Additional anesthesia must be administered _____ before reaching this level.

Eduardo must write a note to the anesthesiologist who is taking over on his shift at 5:00 to provide specific directions about who needs more anesthesia and when.

	Patient A	Patient B	Patient C	Patient D	Patient E
Model	A(t)= $\frac{8t}{0.3t^2+4.1}$	B(t)=	C(t)= $\frac{5.5t}{0.2t^2+2.1}$	D(t)= $\frac{4.9t}{0.1t^2+3.2}$	E(t)= $\frac{10.2t}{0.3t^2+3.9}$
Time Administered	5:04	5:17	5:32	5:51	6:08

Evidence

Use this space to make any calculations and show work.

	Patient A	Patient B	Patient C	Patient D	Patient E
Model	A(t)= $\frac{8t}{0.3t^2+4.1}$	B(t)= $\frac{7t}{0.4t^2+5.3}$	C(t)= $\frac{5.5t}{0.2t^2+2.1}$	D(t)= $\frac{4.9t}{0.1t^2+3.2}$	E(t)= $\frac{10.2t}{0.3t^2+3.9}$
Time Administered	5:04	5:17	5:32	5:51	6:08
0.1 mg/L in ___ minutes	266.61 minutes	174.92 minutes	274.96 minutes	489.935 minutes	339.96 minutes
Could wake at	~9:30	~8:12	~10:07	~2:01	~11:48
Due for more at	9:00	7:42	9:37	1:31	11:18

Conclusion
or Recommendation

Analysis
of the evidence

Interpret the Evidence. What does it mean?

Answers will vary.

Some students may put them in order

The next anesthesiologist would need to administer anesthesia to Patient B first at 7:42, then Patient A at 9:00, then Patient C at 9:37, then Patient E at 11:18, then Patient D at 1:31 if they each remained in surgery.