Handout for MATH 1300 (Barsamian) Lecture L27 Mon Oct 19, 2026 Exponential Day!!

[1] A quantity has initial value 40 and doubles every minute.
(a) Write formula for the quantity with base $b > 1$ but $b \neq e$.
(b) Write formula for the quantity with base e.
(c) Make a graph of the function. Label important stuff.

[2] A quantity has initial value 40 and doubles every 15 minutes.
Same questions as [1]

[3] A quantity has initial value 40 and halves every 15 minutes.
(a) Write formula for the quantity with base $0 < b < 1$.
(b) Write formula for the quantity with base $b > 1$ but $b \neq e$.
(c) Write two different versions of the formula for the quantity with base e. (Hint: modify (a),(b))
(d) Make a graph of the function. Label important stuff.

[4] A quantity has initial value -40 and halves every 15 minutes.
Same questions as [3]. That is
(a) Write formula for the quantity with base $0 < b < 1$.
(b) Write formula for the quantity with base $b > 1$ but $b \neq e$.
(c) Write two different versions of the formula for the quantity with base e. (Hint: modify (a),(b))
(d) Make a graph of the function. Label important stuff.

[5] Everything from [4] moved up 80 units.
Same questions as [4] but with one extra question.
(a) Write formula for the quantity with base $0 < b < 1$.
(b) Write formula for the quantity with base $b > 1$ but $b \neq e$.
(c) Write two different versions of the formula for the quantity with base e. (Hint: modify (a),(b))
(d) Make a graph of the function. Label important stuff.
(e) Make up a story of a real world situation where some quantity behaves this way.