

6N / Classroom answers

Teacher copy. Accept equivalent exact forms and valid alternative reasoning.

1. Percentage multipliers

1.09 and 0.86.

- $1 + 0.09 = 1.09$; $1 - 0.14 = 0.86$.
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2. Write and use a model

$V = 1200(0.85)^n$; \$867.00.

- The multiplier is 0.85.
 - $V(2) = 1200(0.85)^2 = 867$.
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3. Calculate compound growth

\$1,007.77.

- $S(3) = 800(1.08)^3 = 1007.7696$.
 - Round the final balance to cents.
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4. Earliest affordable year

Year 4; \$1,088.39.

- Year 3 has $1007.7696 < 1050$.
 - Year 4 has $800(1.08)^4 = 1088.391168$, so it is the first affordable whole year.
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5. Calculate compound decay

112.5 mg; not yet safe.

- $A(3) = 900(0.5)^3 = 112.5$.
 - $112.5 > 100$.
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6. First safe whole cycle

Cycle 4: 56.25 mg; cycle 3: 112.5 mg.

- $A(4) = 900(0.5)^4 = 56.25 \leq 100$.
 - The previous cycle has $112.5 > 100$, so cycle 4 is first.
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6N / Homework answers

Teacher copy. Accept equivalent exact forms and valid alternative reasoning.

1. Percentage multipliers

1.06 and 0.78.

- $1 + 0.06 = 1.06$; $1 - 0.22 = 0.78$.
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2. Write and use a model

$V = 1600(0.9)^n$; \$1,166.40.

- The multiplier is 0.9.
 - $V(3) = 1600(0.9)^3 = 1166.4$.
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3. Calculate compound growth

\$1,123.60.

- $S(2) = 1000(1.06)^2 = 1123.6$.
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4. Earliest affordable year

Year 3; \$1,191.02.

- Year 2 has $1123.6 < 1150$.
 - Year 3 has $1000(1.06)^3 = 1191.016$, so it is the first affordable whole year.
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5. Calculate compound decay

128 mg; not yet safe.

- $A(2) = 800(0.4)^2 = 128$.
 - $128 > 60$.
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6. First safe whole cycle

Cycle 3: 51.2 mg; cycle 2: 128 mg.

- $A(3) = 800(0.4)^3 = 51.2 \leq 60$.
 - The previous cycle has $128 > 60$, so cycle 3 is first.
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