

Percent Change Patterns

Spot constant growth and decay rates.

HIGH SCHOOL • HSF-LE.A.1c

CCSS.Math.Content.HSF-LE.A.1c "Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another."

NAME _____

DATE _____

THE BIG IDEA

A constant percent change adds or removes the same percent of the current amount each interval. Growth has a multiplier greater than 1, and decay has a multiplier less than 1.

WORKED EXAMPLE

A game score starts at 200 points and grows 15% per round. Find the score after one round.

1. $15\% \text{ of } 200 = 30$

2. $200 + 30 = 230$

Answer: 230 points

PRACTICE 5 problems

- 1** A balance is multiplied by 0.92 each day. Is it growth or decay? State the rate.

ANSWER _____

- 2** A quantity changes from 42 to 63 to 94.5. Does it have a constant percent rate? State it.

ANSWER _____

- 3** An amount decreases 6% each hour. What is its multiplier?

ANSWER _____

- 4** A value changes from 75 to 60 to 48. State the constant percent rate.

ANSWER _____

- 5** Which situation has a constant percent rate: adding \$5 each month or increasing by 5% each month?

ANSWER _____

APPLY IT Show your work

- 1** A streamer has 32 followers. The follower count grows 50% each month. How many followers will the streamer have after 2 months?

WORK SPACE

ANSWER _____

- 2** A used tablet is worth \$96. Its value decays 25% each year. What is its value after 2 years?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

At hours 0, 1, 2, and 3, a quantity is 16, 24, 36, and 54. Does this show constant percent growth? State the rate and explain.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A balance is multiplied by 0.92 each day. Is it growth or decay? State the rate.	Decay, 8% per day.
2	A quantity changes from 42 to 63 to 94.5. Does it have a constant percent rate? State it.	Yes, 50% growth per interval.
3	An amount decreases 6% each hour. What is its multiplier?	0.94
4	A value changes from 75 to 60 to 48. State the constant percent rate.	20% decay per interval.
5	Which situation has a constant percent rate: adding \$5 each month or increasing by 5% each month?	Increasing by 5% each month.

PART 2 • APPLY IT

1. **72 followers** Multiply by 1.5 twice: $32 \times 1.5 \times 1.5 = 72$.
2. **\$54** Multiply by 0.75 twice: $96 \times 0.75 \times 0.75 = 54$.

CHALLENGE

Yes. Each value is 1.5 times the previous value, so the quantity grows 50% per hour.

Accept equivalent wording such as “decreases by 8%” for decay. For percent rates, accept a correct multiplier explanation.