

Name: _____ Date: _____

Benchmark Increase, Benchmark Decrease

GRADE 7

MATHEMATICS

B2.3

Every percent is built from a few easy ones. 1% moves the decimal two places. 5% is half of 10%. Once you have the piece you need, a change is one multiplication: increasing by 5% is multiplying by 1.05, decreasing by 5% is multiplying by 0.95.

PART A: BUILD ANY PERCENT

1. Find 1% of \$240: \$_____.
2. Find 5% of \$240: \$_____.
3. Raise \$240 by 5%: \$_____.
4. Lower \$240 by 5%: \$_____.

PART B: CHANGES IN SEQUENCE

5. Noura's balance is \$160. She receives a 25% bonus, then spends 50% of the new balance. What is left?

SHOW YOUR WORK

Answer: _____

6. A reward costs \$90 and drops by 1% each week for two weeks. What is the price after the second week?

SHOW YOUR WORK

Answer: _____

7. Mandla's weekly income is \$40 and rises by 25%. What is his new income, and which mental strategy did you use?

SHOW YOUR WORK

Answer: _____

PART C: UP THEN DOWN

8. Increasing by 50% and then decreasing by 50% leaves you:
(A) below where you started (B) exactly where you started (C) above where you started
9. \$300 increased by 15% is:
(A) \$345 (B) \$315 (C) \$450

PART D: RISE THEN CUT

10. A classmate says a 10% pay rise cancels out a 10% pay cut. Use a \$200 weekly income to show whether that is true.

Benchmark Increase, Benchmark Decrease

ANSWER KEY

1. \$2.40
2. 12
3. 252
4. 228
5. \$100. The bonus takes her to \$200, and spending half of that leaves \$100.
6. \$88.21, because the second 1% comes off \$89.10 rather than off \$90.
7. \$50. A quarter of \$40 is \$10, so adding it on gives \$50.
8. A) below where you started
9. A) \$345
10. It is not true. A 10% rise takes \$200 to \$220, and a 10% cut from \$220 gives \$198, which is \$2 below where it started. The cut is taken from a larger amount than the rise was, so it removes more than the rise added.

TEACHER NOTES

The grade-level expectation: increasing and decreasing by 1%, 5%, 10%, 25%, 50% and 100% mentally, with the strategy explained. Part B question 3 asks for the mental route as well as the answer, and Part D introduces the idea that sequential percent changes do not add.