

Name: _____

Chapter 1 Challenge

Definitions:

For the following questions provide a definition in your own words and the formula(s) used to solve for the term (*if it has one*).

1. Slope:

2. Grade:

3. Rate of Change:

4. Independent Variable:

5. Dependent Variable:

Multiple Choice:

6. A wheelchair ramp rises 5 feet over a distance of 15 feet. What is the slope of this ramp?
 - a. 0.25
 - b. 0.33
 - c. 0.49
 - d. 1.12

7. A hill has a slope of $\frac{5}{11}$, and a horizontal distance of 3m. What is the rise of the hill?
 - a. 1.36
 - b. 2.40
 - c. 5.21
 - d. 6.60

8. If the slope of a hill is $\frac{1}{4}$, which of the following would be the rise and run?
 - a. Rise of 5m, and a run of 20m
 - b. Rise of 3m, and a run of 4m
 - c. Rise of 20m, and a run of 5m
 - d. Rise of 4m, and a run of 3m

9. At the post office, Amaya sorted 43 letters in 19 minutes. After a total of 76 minutes, she has sorted 172 letters. What coordinates would represent her work?
 - a. (43, 19) and (172, 76)
 - b. (43, 19) and (76, 172)
 - c. (19, 172) and (76, 43)
 - d. (19, 43) and (76, 172)

10. Amrit is studying for an exam, reading his textbook at a rate of 0.5 pages/minute. The exam covers a 42-page chapter. How long will it take him to finish reading the chapter?
 - a. 1.1 hours
 - b. 109.2 minutes
 - c. 1.4 hours
 - d. 25.2 minutes

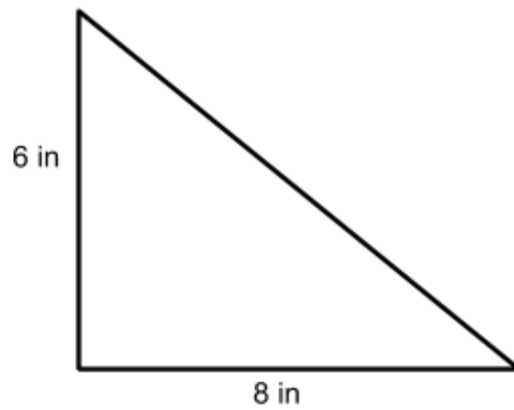
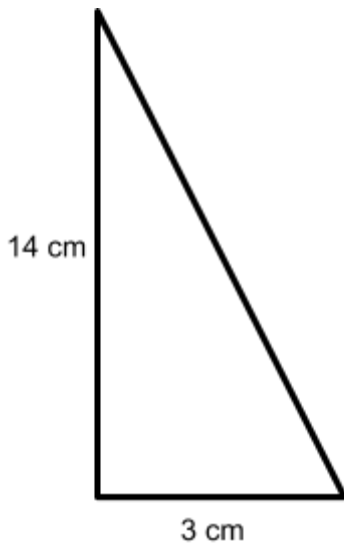
Short Answer:

11. A mini ski hill in Banff, Alberta has a rise of 15m and a run of 25m, what is the slope of the hill?

12. A skateboard ramp has a slope of $\frac{4}{5}$ and vertical distance of 216 cm. What is the horizontal distance of the ramp?

13. A designer of dog agility courses is planning a ramp which will have a 34% grade and rise to a platform at 6.5 feet. How long will the ramp be?

14. Label the angles of elevation and slope in the following triangle and calculate their values.



15. To assist fish in returning to spawning sites up gentle slopes, a rough artificial stream can be built instead of a fish ladder. To cross a dam which is 10 feet high, an artificial stream covers a run of 61 feet. Draw and label a diagram of the situation. What is the length of the artificial stream?

16. Pascal is climbing a 700-m cliff face, climbing at a constant rate of 30 metres per 25 minutes. What is Pascal's rate of change?

17. Jennifer was trying to determine how long it would take for her to drive from Calgary to Edmonton if she traveled at a constant rate of change of 110 km/hr and had to drive 245km. How long will it take for her to get to Calgary?

18. Hector borrowed \$575.00 from his aunt to pay for repairs to his car. After 2 weeks, he paid her back \$120.00.

a. What is the independent and dependent variable in the problem?

b. At what rate does Hector pay his aunt back per week?

c. How much has he paid back after 5 weeks?

d. How many weeks would it take for Hector to pay his aunt back fully?