

A quick review on converting between fractions, decimals, and percents....

1) Fraction to Decimal

Divide top by
Bottom

$$\frac{3}{4} = 0.75$$

2) Percent to Fraction

35% Put it over
100 and
Reduce

$$\frac{35}{100} \div 5$$
$$= \frac{7}{20}$$

3) Decimal to Percent

Multiply by 100

$$0.75 \times 100 = 75\%$$

4) Percent to Decimal

Divide by 100

$$37\% \div 100$$
$$= 0.37$$

So if you're asked to express slope as a **grade**, make it a decimal and turn it into a percent.

Slope as a Percent Grade

Tanya works for the department of transportation. Her job is to place warning signs in areas along the highway that may be dangerous.

- What is the purpose of this road sign?
- What does 8% **grade** mean?
- Express the slope of the road as a fraction.
- Explain what the 8% means in terms of the road.
- Tanya inspects a section of the Trans-Canada Highway. She calculates that the road drops 5 m for every 40 m horizontal distance. What is the slope of the road? Explain what this means in terms of the road.
- Warning signs are usually placed in areas where the grade is 6% or greater. Should Tanya install a warning sign along the section of the highway in part e)? If so, what grade should the sign show?

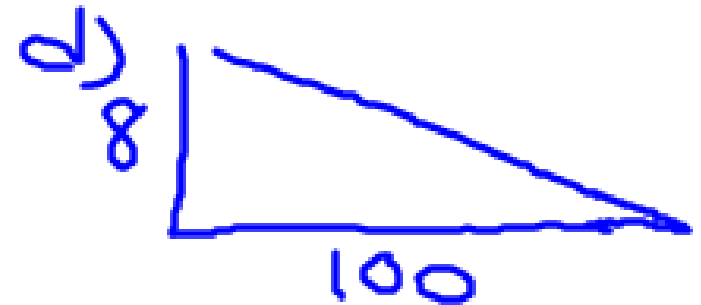


a) Slow down -
steep hill!

b) $8\% = \frac{8}{100}$ (c)

Tells the slope!

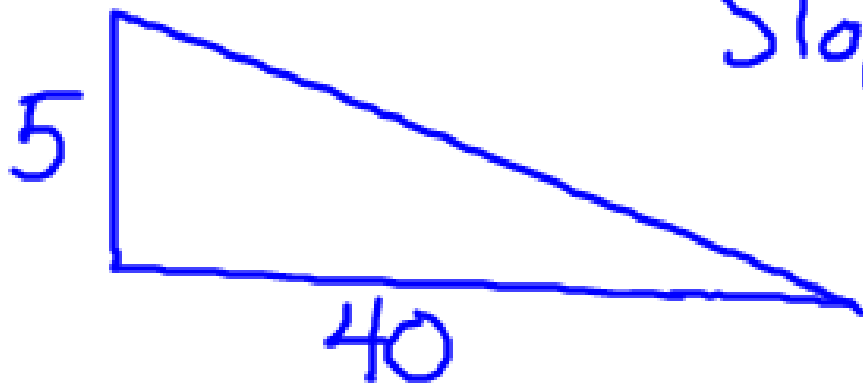
%. grade is Slope
out of 100.



- e) Tanya inspects a section of the Trans-Canada Highway. She calculates that the road drops 5 m for every 40 m horizontal distance. What is the slope of the road? Explain what this means in terms of the road.



- f) Warning signs are usually placed in areas where the grade is 6% or greater. Should Tanya install a warning sign along the section of the highway in part e)? If so, what grade should the sign show?



$$\text{Slope} = \frac{\text{Rise}}{\text{Run}}$$

$$= \frac{5}{40} \div 5 = \frac{1}{8}$$

Turn into decimal = 0.125

$$0.125 \times 100 = 12.5\%$$

Yes Tanya needs a sign.

Your Turn

- What does this sign warn motorists about?
- Express the slope of the road as a fraction.
- Explain what the 18% means.
- A road drops 5 ft for every 90 ft of horizontal distance. Would you expect to see a warning sign there? Explain why or why not.



a) Steep Hill approaching

$$18\% \rightarrow \frac{18 \div 2}{100 \div 2} = \frac{9}{50} \leftarrow \text{Slope}$$

$$\begin{aligned} \text{Slope} &= \frac{5}{90} = 0.0556 \\ &= 0.06 \times 100 \\ &= 6\% \end{aligned}$$

Homework: 282-283 #1-9

Test: Slope & Trig
Wed Oct. 7th !!

282-283
1-9