Date: KEY

8.4 Combining Percents

What are PST and GST?

PST → Provincial Sales Tax (BC)

GST → Goods and Services Tax (Canada)

What is HST?

Harmonized Sales Tax

The rates of taxes in British Columbia are:	
GST:	5%
PST:	7%
HST:	12% (Not used any more)

Example:
A Coach Purse costs $250. If there is 7% PST and 5% GST, what is the cost of the jacket after taxes?

Method 1: Finding the taxes separately

PST = 7% of $250
= 0.07 × $250
= $17.50

GST = 5% of $250
= 0.05 × $250
= $12.50

TOTAL TAX
= $17.50 + $12.50
= $30.00

TOTAL COST?
$250 + $30 = **$280**

Method 2: Combining the percents together

SINCE BOTH ARE PERCENTS OF $250 (THE SAME NUMBER), YOU CAN ADD THE PERCENTS.

① 7% + 5% = 12%

② 12% of $250 = 0.12 × $250 = $30.00

③ TOTAL COST = $250 + $30 = **$280**

Is there any other method?
This is like having a 12% increase.

↳ THIS IS LIKE HAVING 100% AND 12% MORE → LIKE HAVING 112%.

112% OF $250
= 1.12 × $250
= **$280**

Summary:
When can you add percents together?

WHEN THEY ARE PERCENTS OF THE SAME NUMBER.

Example:

1) Weeble Wobbles have a retail value of $80. They are tagged as being 20% off. Today, as part of a one day promotion, everything is reduced by 10% of the sale price. Find the final sale price.

PLAN 1:

1. FIND 20% OF $80
2. TAKE IT OFF ⇨ SALE PRICE
3. FIND 10% OF SALE PRICE
4. TAKE IT OFF ⇨ PROMO PRICE.

EXECUTE

1. 20% of $80 = 0.20 × $80 = $16.
2. $80 − $16 = $64

PLAN 2 (IN CLASS):

SINCE 20% off is 80% AND 10% off is 90%:

1. FIND 80% of $80
2. FIND 90% of SALE PRICE

3. 10% of $64 = 0.10 × $64 = $6.40
4. $64 − $6.40 = **$57.60**

PLAN 3 (IN CLASS):

FIND 90% OF 80% OF $80.

↳ NOT OFF THE ORIGINAL PRICE,

1. 20% off $80
2. THEN 10% OFF.

SO YOU CAN'T ADD THE PERCENTS!

2) Fran finds Weeble Wobbles on sale at another store. They have the same retail price, but are on sale for 30% off. Is this a better price?

$80

METHOD 1

30% of $80
= 0.30 × 80
= $24

$80 − $24
= **$56**

$56 < $57.60

YES, IT'S A BETTER PRICE

METHOD 2

70% of $80
= 0.70 × $80
= **$56**

3) Why is a 20% discount followed by a 10% discount NOT the same as a 30% discount?

BECAUSE THE 10% IS OF A DIFFERENT NUMBER THAN THE 20%

EXAMPLE: $250
20% OFF: $200
10% OFF: $180 ⇦ 10% OF 200, NOT 250

$250
30% OFF: $175