

Solutions

1. What is the difference between a sale price and a final price?

Sale price is the price after the discount is applied.

Final price includes discounts and sales taxes.

2. List the steps you would use to find the final price on an item that is on sale at a 20% discount.

Multiplier for discount
 $= 1 - 0.20$ ← 20%
 $= 0.80$

Multiplier for HST
 $= 1 + 0.13$ ← 13%
 $= 1.13$

Final price

$$= 59.99 \times 0.80 \times 1.13$$

$$= \$54.23$$



3. Find the 7% GST on each item.

- a) a concert ticket that cost \$20
- b) a haircut that costs \$15
- c) a pen that costs \$1.99

Multiply by 0.07

$$a) 20 \times 0.07 = \$1.40$$

$$b) 15 \times 0.07 = \$1.05$$

$$c) 1.99 \times 0.07 = \$0.14$$

4. Find the 8% PST on each item.

- a) a hair brush that costs \$10
- b) a jacket that costs \$85.50
- c) a card that costs \$1.99

Multiply by 0.08

$$a) 10 \times 0.08 = \$0.80$$

$$b) 85.50 \times 0.08 = \$6.84$$

$$c) 1.99 \times 0.08 = \$0.16$$

5. Find the ~~PST~~ and the ~~GST~~ on each item.

Item	Price
a) CD	\$18.99
b) In-line skates	\$325.00
c) Scarf	\$10.95

HST

Multiply by 0.13

$$a) 18.99 \times 0.13 = \$2.47$$

$$b) 325.00 \times 0.13 = \$42.25$$

$$c) 10.95 \times 0.13 = \$1.42$$

6. Find the total cost of each item, including ~~PST~~ and ~~GST~~.

HST

Item	Price
a) CD player	\$79.00
b) Earrings	\$9.50
c) Watch	\$128.00

Multiply by 1.13

$$a) 79 \times 1.13 = \$89.27$$

$$b) 9.50 \times 1.13 = \$10.74$$

$$c) 128.00 \times 1.13 = \$144.64$$

7. Estimate, then calculate, each discount.

- a) 25% off jeans at \$48.99
 b) 20% off museum admission at \$32.00
 c) 30% off a digital camera at \$299.95

Estimate

→ \$12
 → \$6
 → \$90

$$\begin{aligned} \text{a)} \quad & 48.99 \times 0.25 \\ & = \$12.25 \end{aligned}$$

$$\begin{aligned} \text{b)} \quad & 32.00 \times 0.20 \\ & = \$6.40 \end{aligned}$$

$$\begin{aligned} \text{c)} \quad & 299.95 \times 0.30 \\ & = \$89.99 \end{aligned}$$

8. A clothing store has an end-of-season sale.

All items are discounted by 30%. Estimate, then calculate, the sale price of each item.

Then, find the final price of each item including taxes.

	Item	Price
a)	Sweater	\$59.00
b)	Gloves	\$8.79
c)	Coat	\$209.95

$$\begin{aligned} \text{Multiplier} &= 1 - 0.30 \\ &= 0.70 \end{aligned}$$

$$\begin{aligned} \text{a)} \quad & \text{Sale Price} \\ & = 59 \times 0.70 \\ & = \$41.30 \\ & \text{Final Price} \\ & = 41.30 \times 1.13 \\ & = \$46.67 \end{aligned}$$

$$\begin{aligned} \text{b)} \quad & \text{Sale Price} \\ & = 8.79 \times 0.70 \\ & = \$6.15 \\ & \text{Final Price} \\ & = 6.15 \times 1.13 \\ & = \$6.95 \end{aligned}$$

$$\begin{aligned} \text{c)} \quad & \text{Sale Price} \\ & = 209.95 \times 0.70 \\ & = \$146.97 \\ & \text{Final Price} \\ & = 146.97 \times 1.13 \\ & = \$166.08 \end{aligned}$$

9. Estimate, then calculate, the sale price of each item. Then, find the final price of each item including taxes.

	Item	Regular Price	Discount
a)	T-shirt	\$9.79	50%
b)	Crayons	\$4.59	10%
c)	Computer	\$1199.00	30%

Discount multiplier
 $= 1 - \text{Discount}$

$$\text{a) } 9.79 \times 0.50$$

$$= \$4.90$$

$$\text{Final Price}$$

$$= 4.90 \times 1.13$$

$$= \$5.54$$

$$\text{b) } 4.59 \times 0.90$$

$$= \$4.13$$

$$\text{Final Price}$$

$$= 4.13 \times 1.13$$

$$= \$4.67$$

$$\text{c) } 1199.00 \times 0.70$$

$$= \$839.30$$

$$\text{Final Price}$$

$$= 839.30 \times 1.13$$

$$= \$948.41$$

10. a) Find three advertisements in a flyer, magazine, or newspaper that give a regular price and a percent discount.
 b) Estimate the final price of each item.
 c) Calculate the discount, sale price, total taxes, and final price of each item.

- d) State any assumptions you needed to make.
 e) Compare your estimates to your calculated values. Are you getting any better at estimating final prices? When you go shopping, try to estimate the final price before the cashier rings it up.

11. A shirt has a regular price of \$30. You notice that it is now marked at 15% off.



The final price will be \$30. The discount will just cancel out the sales tax.

Is Matt correct? Show calculations to support your answer.

This question was set when sales tax = 15%.
FACT: If you take off a given percentage and then add that percentage back, you do NOT get

what you started with!

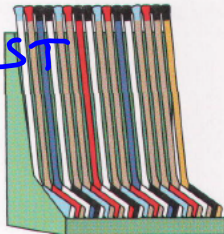
$$\begin{aligned} \text{Example: } \$100 - 20\% \\ &= 100 \times 0.80 \\ &= \$80 \end{aligned}$$

$$\begin{aligned} &\rightarrow \$80 + 20\% \\ &= 80 \times 1.20 \\ &= \$96 \\ &\text{Which is NOT } \$100. \end{aligned}$$



12. The price of a hockey stick is \$24.99. You must pay ~~PST and GST~~ **HST** on hockey sticks.

\$24.99



- Find the total cost, including taxes, for one hockey stick.
- Solve part a) using a different method.
- The store delivers flyers with 20% discount coupons. What is the total price of two sticks with the discount?

$$\begin{aligned} \text{a) } 24.99 \times 1.13 \\ &= \$28.24 \end{aligned}$$

$$\begin{aligned} \text{b) Tax} &= 24.99 \times 0.13 \\ &= \$3.25 \end{aligned}$$

$$\begin{aligned} \text{Add it to the price} \\ &= 24.99 + 3.25 \\ &= \$28.24 \end{aligned}$$

$$\begin{aligned} \text{c) Two sticks} &= 2 \times 24.99 \\ &= \$49.98 \\ \text{Discounted price (20\%)} \\ &= 49.98 \times 0.80 \\ &= \$39.98 \end{aligned}$$

$$\begin{aligned} &\rightarrow \text{Final price} \\ &= 39.98 \times 1.13 \\ &= \$45.18 \end{aligned}$$