



## Worksheet 4: Absolute and relative changes answers

- 1 The price of a bicycle changes from \$120 to \$160. The price of a laptop changes from \$1200 to \$1400.

	Bicycle	Laptop
Absolute change:	+\$40	+\$200
Relative change:	$\frac{(\$160 - \$120)}{\$120} \times 100 = +33\%$	$\frac{(\$1400 - \$1200)}{\$1200} \times 100 = +17\%$
Proportion of income taken by the price change:	$\frac{\$40}{\$10000} \times 100 = +0.4\%$	$\frac{\$200}{\$10000} \times 100 = +2\%$

Which product experiences a larger relative increase in price? *The bicycle*

Effect on income: *Although the laptop's price changes by a smaller percentage, the change takes a larger proportion of the individual's income.*

- 2 The price of a book changes from \$18 to \$23. The price of a can of a fizzy drink costing \$3 doubles.

	Book	Fizzy drink
Absolute change:	+\$5	+\$3
Relative change:	$\frac{(\$23 - \$18)}{\$18} \times 100 = +27.8\%$	$\frac{(\$6 - \$3)}{\$3} \times 100 = +100\%$
Proportion of income taken by the price change:	$\frac{\$5}{\$10000} \times 100 = +0.05\%$	$\frac{\$3}{\$10000} \times 100 = +0.03\%$

Which product experiences a larger relative increase in price? *The fizzy drink*

Effect on income: *The fizzy drink price changes by a larger percent, but the change takes a smaller proportion of the individual's income.*



- 3 The price of an airplane ticket changes from \$200 to \$230. The price of a bus ticket changes from \$30 to \$38.

	Airplane ticket	Bus ticket
Absolute change:	+\$30	+\$8
Relative change:	$\frac{(\$230 - \$200)}{\$200} \times 100 = +15\%$	$\frac{(\$38 - \$30)}{\$30} \times 100 = +26.7\%$
Proportion of income taken by the price change:	$\frac{\$30}{\$10000} \times 100 = +0.3\%$	$\frac{\$8}{\$10000} \times 100 = +0.08\%$

Which product experiences a larger relative increase in price? *The bus ticket*

Effect on income: *The bus ticket price changes by a larger percent, but the change takes a smaller proportion of the individual's income.*

- 4 The price of a TV changes from \$1530 to \$1950. The price of a smartphone changes from \$800 to \$1120.

	TV	Smartphone
Absolute change:	+\$420	+\$320
Relative change:	$\frac{(\$1950 - \$1530)}{\$1530} \times 100 = +27.45\%$	$\frac{(\$1120 - \$800)}{\$800} \times 100 = +40\%$
Proportion of income taken by the price change:	$\frac{\$420}{\$10000} \times 100 = +4.2\%$	$\frac{\$320}{\$10000} \times 100 = +3.2\%$

Which product experiences a larger relative increase in price? *The smartphone*

Effect on income: *The smartphone price changes by a larger percent, but the change takes a smaller proportion of the individual's income.*

- 5 The price of a cinema ticket changes from \$28 to \$38. The price of a gym membership card changes from \$80 to \$135.

	Cinema ticket	Gym membership card
Absolute change:	+\$10	+\$55
Relative change:	$\frac{(\$38 - \$28)}{\$28} \times 100 = +35.7\%$	$\frac{(\$135 - \$80)}{\$80} \times 100 = +68.75\%$
Proportion of income taken by the price change:	$\frac{\$10}{\$10000} \times 100 = +0.1\%$	$\frac{\$55}{\$10000} \times 100 = +0.55\%$

Which product experiences a larger relative increase in price? *The gym membership card*

Effect on income: *The gym membership card price changes by a larger percent and the change also takes a larger proportion of the individual's income.*



- 6 The price of a back pack changes from from \$350 to \$420. The price of a tent changes from \$550 to \$780.

	Back pack	Tent
Absolute change:	+\$70	+\$230
Relative change:	$\frac{(\$420 - \$350)}{\$350} \times 100 = +20\%$	$\frac{(\$780 - \$550)}{\$550} \times 100 = +41.81\%$
Proportion of income taken by the price change:	$\frac{\$70}{\$10000} \times 100 = +0.7\%$	$\frac{\$230}{\$10000} \times 100 = +2.3\%$

Which product experiences a larger relative increase in price? *The tent*

Effect on income: *The tent price changes by a larger percent and the change takes a larger proportion of the individual's income.*