

Percent Population Problems Worksheet

1. Last year's spell-a-thon spelling test for a first grade class had 15% more words with four or more letters than this year's spelling test. Next year, there will be 5% less than this year. What percent more words have four or more letters in last year's test than next year's?

2. An ice cream shop sells 75% less ice cream in December than in June. Twenty percent more ice cream is sold in July than in June. By what percent did ice cream sales increase from December to July?

3. The livestock on a small farm the prior year consisted of 40% goats, 10% cows, and 50% chickens. This year, there is a 5% decrease in goats, 9% increase in cows, and 15% increase in chickens. What is the percent increase or decrease of livestock this year?

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Let t represent this year's amount of spell-a-thon words with four letters or more.

Last year: $1.15t$

Next year: $0.95t$

$1.15t \div 0.95t \times 100\% \approx 121\%$. There were about 21% more words with four or more letters last year than there will be next year.

2. An ice cream shop sells 75% less ice cream in December than in June. Twenty percent more ice cream is sold in July than in June. By what percent did ice cream sales increase from December to July?

Let j represent sales in June.

December: $0.25j$

July: $1.20j$

$1.20 \div 0.25 = 4.8 \times 100\% = 480\%$. Ice cream sales in July increase by 380% from ice cream sales in December.

3. The livestock on a small farm the prior year consisted of 40% goats, 10% cows, and 50% chickens. This year, there is a 5% decrease in goats, 9% increase in cows, and 15% increase in chickens. What is the percent increase or decrease of livestock this year?

Let l represent the number of livestock the prior year.

Goats decrease: $0.4l - (0.4l \times 0.05) = 0.38l$ or $0.95(0.4l) = 0.38l$

Cows increase: $0.1l + (0.1l \times 0.09) = 0.109l$ or $1.09(0.1l) = 0.109l$

Chickens increase: $0.5k + (0.5k \times 0.15) = 0.575l$ or $1.15(0.5l) = 0.575l$

$0.38l + 0.109l + 0.575l = 1.064l$. There is an increase of 6.4% in livestock.

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