

Name: _____

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5. The Republic of Ireland has enjoyed significant population growth in the last few years, reaching 4.78 million in 2017, its highest population in 150 years. It's lowest point was at 2.82 million people in 1961. Ireland has an area of 27,133 mi².

(a) What's the population density of Ireland in 2017? (Round to the nearest tenth.)

(b) What's the percentage (relative) change in the population from 1961 to 2017?

6. The average cost of tuition of public 4-year colleges and universities over the past 30 years is (in 2017 dollars) as follows:

year	average cost (\$)
1987	3,190
1997	4,740
2007	7,280
2017	9,970

(a) By what percentage has the cost changed from 2007 to 2017?

(b) The average tuition cost in 2007 is _____% of the tuition cost in 2017.

7. Make an order of magnitude estimate for the amount of gasoline (in gallons) an average car uses in a year. (Explain the assumptions you use in your estimates.)

8. The national debt of the U.S. (according to the *U.S. Debt Clock*, at the time of writing) is \$21,970,695,000,000.
- (a) How many significant digits are there in that figure?
- (b) Write this figure in scientific notation.

In the next two problems, refer to the CPI table listed below.

9. Suppose you needed \$20,000 to maintain a particular standard of living in 1980. How much would you have needed in 1990 to maintain the same standard of living? (Assume that all prices have risen at the same rate as the CPI.)

10. Your dream car in 2017 sells for \$50,000. How much would it have sold for in 1950?

Year	CPI	year	CPI
1920	20	2010	218.056
1930	16.7	2011	224.939
1940	14	2012	229.594
1950	24.1	2013	232.957
1960	29.6	2014	236.736
1970	38.8	2015	237.017
1980	82.4	2016	240.007
1990	130.7	2017	245.120
2000	172.2		