

## EXERCISE SET 5 ANSWER KEY

1. **C** In 2005, the revenue per store, according to the line of best fit, was about \$300,000, and in 2012 it was about \$650,000, so the percent change is  $(650,000 - 300,000)/300,000 \times 100\% = 116.67\%$ , which is closest to (C) 120%.

2. **D** In 2006, the data points show that there were 3 stores, with revenue of roughly \$200,000, \$330,000, and \$420,000, for a total of \$950,000.

3. **D** In 2009, the combined revenue for the three stores was approximately  $\$420,000 + \$450,000 + \$550,000 = \$1,420,000$ . In 2010, the combined revenue for four stores was approximately  $\$220,000 + \$520,000 + \$600,000 + \$675,000 = \$2,015,000$ , for an increase of about \$595,000.

4. **C** In 2006 there were 3 stores and in 2012 there were 6 stores, which is an increase of  $(6 - 3)/3 \times 100\% = 100\%$ .

5. **A** The chart shows that 20% of the expense budget went to defense, which equals  $0.2 \times \$3,500,000,000,000 = \$700$  billion.

6. **C** Medicare accounts for 13% of expenses, so the sector angle is  $0.13 \times 360^\circ = 46.8^\circ$ .

7. **B** The Interest on National Debt in 2010 was  $0.057 \times \$3.5$  trillion = \$199.5 billion, so a decrease of \$20 billion would be  $20/199.5 \times 100\% = 10\%$ .

8. **D** The difference between Interest on National Debt and Education is  $5.7\% - 3.7\% = 2\%$ , and  $0.02 \times \$3.5$  trillion = \$70 billion.

9. **B** The Social Security budget in 2010 was  $0.20 \times \$3.5$  trillion = \$700 billion. 50% of the Federal Pensions budget is  $0.5 \times 0.035 \times \$3.5$  billion = \$61.25 billion. This would be an increase of  $61.25/700 \times 100\% = 8.75\%$ .

10. **B** The vertical axis label on the left shows that the violent crime trend is indicated by the *solid* curve and the *bottom* time series (1963–2013). For this curve, 1970 is slightly to the left of the vertical line at 1973, which shows values clearly between 300 and 450.

11. **C** The vertical axis label on the left shows that the preschool blood lead trend is indicated by the *dashed* curve and the *top* time series (1940–1990).

12. **C** In 1993, the violent crime rate was 750, and in 2013 it was about 400. The percent decrease is therefore  $(400 - 750)/750 \times 100\% = 46.7\%$

13. **A** In 1970, the blood lead levels were about 23 and in 1990, they were about 3. The rate of decline is therefore  $(23 - 3)/(1990 - 1970) = 1$  mcg/dL per year.

14. **A** From 1945–1955 preschool blood lead levels increased from about 5 to about 17, a percent increase of  $(17 - 5)/5 \times 100\% = 240\%$ .

15. **A** The question asks for the greatest *percent* increase, not the greatest *net* increase in violent crime. Notice that the *net* increase from 1963–1968 (from roughly 150 to 250) seems to be slightly less than net increase from 1968–1973 (from roughly 250 to 375), the *percent* increase from 1963–1968 (+67%) is clearly greater than that from 1968–1973 (+50%).

16. **B** In 1950, blood lead levels were about 12 mcg/dL, and they did not return to this level until 1980.

17. **D** The graph indicates that from about 1970 to 2013, the violent crime rate was above 375 crimes per 100,000 capita.