Problem Set #9

Name: _____ **Date:** _____

1. Which of the following has the same value as $5^6 \times 5^{-2}$?

   A. 5^{-12} B. 5^{-3} C. 5^4 D. 5^8

2. Which expression is equivalent to $7^5 \times 7^{10}$?

   A. 7^{15} B. 7^{50} C. 49^{15} D. 49^{50}

3. Which of these is equivalent to the expression below?

   $$5^a \div 5^b$$

   A. 5^{a-b} B. 5^{a+b} C. $5^{a \div b}$ D. $5^{a \times b}$

4. Solve for a in terms of b and c: $3a + 4b = c$

5. Solve for x in terms of b and c: $2x - b = c$

6. If $f(x) = -2x^2 + 6$, find the value of $f(-3)$.

7. If $f(x) = x^2 + 3x - 5$, find the value of $f(3)$.

8. If y varies directly as x and $y = 32$ when $x = 4$, find the value of y when $x = 5$.

9. The number of chirps made by a cricket varies directly as the temperature. If at 12° a cricket chirps 30 times per minute, how many times per minute will the cricket chirp at 20°?

10. What are the coordinates of the y-intercept in the graph of the equation $y + 3x = 6$?

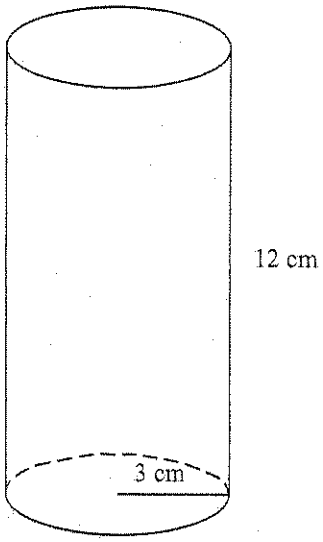
    A. $(0, 6)$ B. $(0, 3)$

    C. $(0, -3)$ D. $(0, -6)$

11. The graph of the equation $x + 3y = 6$ intersects the y-axis at the point whose coordinates are

    A. $(0, 2)$ B. $(0, 6)$ C. $(0, 18)$ D. $(6, 0)$

12. The right circular cylinder represented below has a base radius of 3 centimeters and a height of 12 centimeters.

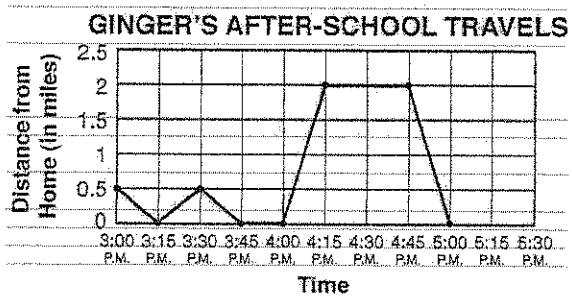


What is the volume of the right circular cylinder in cubic centimeters?

A. $36\pi \text{ cm}^3$ B. $72\pi \text{ cm}^3$

C. $108\pi \text{ cm}^3$ D. $432\pi \text{ cm}^3$

13. Ginger left school at 3:00 pm and walked home, but went back to school for a book. She then walked home, had a snack, and took a bus downtown. Later, she took a bus home, arriving at 5:00 pm Which of the following statements is true?



A. Ginger's maximum distance from home was 2 miles.

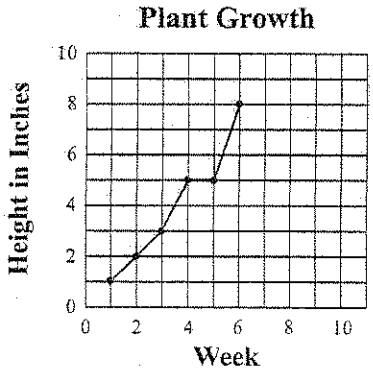
B. Ginger's minimum distance from home was 0.5 miles.

C. At 3:30 pm, Ginger is at her furthest distance from home.

D. At 4:30 pm, Ginger is back at her home.

14. *Use the information in the line graph to answer the following question.*

Between which two weeks did the plant show the *greatest* increase in height?



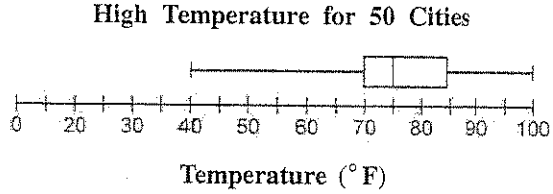
A. Weeks 1 and 2

B. Weeks 3 and 4

C. Weeks 4 and 5

D. Weeks 5 and 6

15. The high temperatures for 50 cities are shown in the box-and-whisker plot.



Which statement is true about this set of data?

A. The lowest high temperature is 70° F.

B. Half the cities had a high temperature of 75° F or greater

C. The mean of the high temperatures is approximately 75° F.

D. More cities had high temperatures between 40° F and 70° F than between 84° F and 100° F.