

4. Which of the following is equivalent to $(4x^2)^3$?

- F. $64x^8$
- G. $64x^6$
- H. $12x^6$
- J. $12x^5$
- K. $4x^6$

$$4^3 x^6 \rightarrow (4x^2)^3$$

$$= 64x^6$$

10. The sum of the real numbers x and y is 11. Their difference is 5. What is the value of xy ?

- F. 3
- G. 5
- H. 8
- J. 24
- K. 55

$$\begin{array}{r} x + y = 11 \\ x - y = 5 \\ \hline 2x = 16 \\ \hline x = 8 \end{array}$$

$$\begin{array}{r} xy = 24 \\ x = 8 \\ 8 + y = 11 \\ \hline y = 3 \end{array}$$

11. For all x , $(3x + 7)^2 = ?$

- A. $6x + 14$
- B. $6x^2 + 14$
- C. $9x^2 + 49$
- D. $9x^2 + 21x + 49$
- E. $9x^2 + 42x + 49$

$$\begin{aligned} & \overbrace{(3x+7)(3x+7)} \\ & 9x^2 + 21x + 21x + 49 \\ & = 9x^2 + 42x + 49 \end{aligned}$$

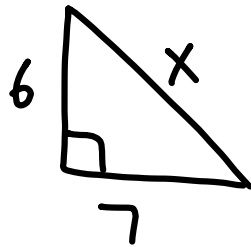
12. What is the slope of the line through $(-5, 2)$ and $(6, 7)$ in the standard (x, y) coordinate plane?

- F. 9
- G. 5
- H. -5
- J. $\frac{5}{11}$
- K. $-\frac{5}{11}$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 2}{6 - (-5)} = \frac{5}{11}$$

14. What is the length, in feet, of the hypotenuse of a right triangle with legs that are 6 feet long and 7 feet long, respectively?

- F. $\sqrt{13}$
 G. $\sqrt{85}$
 H. 13
 J. 21
 K. 42



$$6^2 + 7^2 = x^2$$

$$36 + 49 = 85 = x^2$$

$$\sqrt{85} = x$$

23. Which of the following is a factored form of the expression $5x^2 - 13x - 6$?

- A. $(x - 3)(5x + 2)$
 B. $(x - 2)(5x - 3)$
 C. $(x - 2)(5x + 3)$
 D. $(x + 2)(5x - 3)$
 E. $(x + 3)(5x - 2)$

-15, +2

$$5x^2 - 15x + 2x - 6$$

$$5x(x - 3) + 2(x - 3) = (x - 3)(5x + 2)$$

33. For a population that grows at a constant rate of $r\%$ per year, the formula $P(t) = p_0 \left(1 + \frac{r}{100}\right)^t$ models the population t years after an initial population of p_0 people is counted.

$$A = P(1+r)^t$$

The population of the city of San Jose was 782,000 in 1990. Assume the population grows at a constant rate of 5% per year. According to this formula, which of the following is an expression for the population of San Jose in the year 2000 ?

- A. $782,000(6)^{10}$
- B. $782,000(1.5)^{10}$
- C. $782,000(1.05)^{10}$
- D. $(782,000 \times 1.5)^{10}$
- E. $(782,000 \times 1.05)^{10}$

$$782000(1+.05)^{10}$$