Worksheet 12

1. Find the sum of the roots of the equation $4x^2 - x - 5 = 0$?

   A. $-\frac{5}{4}$

   B. -1

   C. $\frac{1}{4}$

   D. $\frac{5}{4}$

2. One side of a square is increased by 3 feet while the other side is reduced by 2 feet to make a rectangle. If the square and the rectangle have equal areas, what is the length of the rectangle?

   A. 4 feet

   B. 6 feet

   C. 9 feet

   D. 12 feet

3. An object is propelled with an initial velocity of 16 feet per second from a platform which is 32 feet above the ground. At time *t,* its height *h* is given by the equation

   $h = -16t^2 + 16t + 32$

   After how many seconds will the object hit the ground?

   A. 0 second

   B. 1 second

   C. 2 seconds

   D. 3 seconds

4. Ed is one year older than Jo. If the product of their ages is 6, what is the sum of their ages?

   A. 2

   B. 3

   C. 5

   D. 6

5. Fe is 6 years younger than Lee. If the product of their ages is 40, what is the sum of their ages?

   A. 4

   B. 10

   C. 14

   D. 16

6. One side of a square is increased by 3 feet while the other dimension of the square is tripled to produce a rectangle having an area of 84 square feet. If s represents a side of the original square, which of the following equations expresses this relationship?

   A. $s(s+3) = 84$

   B. $3s(s-3) = 84$

   C. $(s+3)(s-3) = 84$

   D. $3s(s+3) = 84$

7. A number a is 7 times the square of twice another number b. Which of the following equations expresses this relationship?

A. $a = 7\sqrt{2b}$

B. $a = 7(2b)^2$

C. $a = 7(2)\sqrt{b}$

D. $a = 7(2)b^2$

8. A football player kicked a ball with an initial velocity of 112 feet per second. If the height h of the ball at any time t is given by the equation $h = 112t - 16t^2$, at what time is the ball 96 feet high?

A. 1 second

B. 2 seconds

C. 5 seconds

D. 7 seconds

9. Refer to Problem 8. How high is the ball at 2 seconds?

A. 112 feet

B. 160 feet

C. 224 feet

D. 288 feet

10. A number N is 12 less than the square of the sum of w^3 and 8. Which of the following expresses this relationship?

A. $N = 12 - (w^3 + 8)^2$

B. $N = 12 - 2(w^3 + 8)$

C. $N = (w^3 + 8)^2 - 12$

D. $N = 2(w^3 + 8) - 12$

11. Multiply.
$(x^2 + 4)(x^2 + 2x - 4)$

A. $x^4 + 2x^3 - 8x^2 + 8x - 16$

B. $x^4 + 4x^3 + 6x^2 - 4x - 16$

C. $x^4 + 2x^3 + 8x^2 - 16$

D. $x^4 + 2x^3 + 8x - 16$

12. Square: $(4a + 5b)$

A. $16a^2 + 40ab + 25b^2$

B. $16a^2 + 20ab + 25b^2$

C. $16a^2 + 20ab + 10b^2$

D. $16a^2 + 25b^2$

13. Determine the quotient.
$(x^2 - 3x + 4) \div (x + 1)$

A. $x - 2 + \dfrac{14}{x+1}$

B. $x - 4 + \dfrac{8}{x+1}$

C. $x - 4 - \dfrac{8}{x+1}$

D. $x + 4$