

Student: _____
Date: _____

Instructor: James Howard
Course: Intermediate Algebra

Assignment: Quiz 3

1. Factor.

$$4r^2 - 25$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

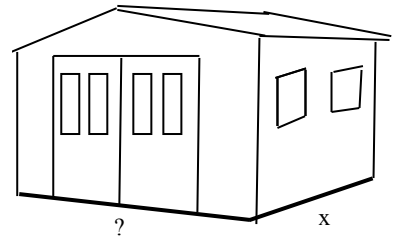
- ☐ A. $4r^2 - 25 =$ _____
☐ B. $4r^2 - 25$ is prime.

2. One positive number exceeds another by 5, and their product is 104. Find the numbers.

The numbers are _____.

(Type an integer or a simplified fraction. Use a comma to separate answers as needed.)

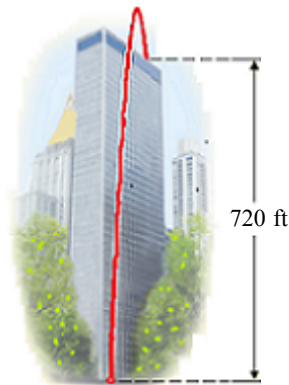
3. The floor of a shed given on the right has an area of 75 square feet. The floor is in the shape of a rectangle whose length is 5 feet less than twice the width. Find the length and the width of the floor of the shed.



The length of the floor of the shed is _____ (1) _____ and the width is
_____ (2) _____

- (1) ☐ ft^2 (2) ☐ ft^2 .
☐ ft ☐ ft.

4. Suppose that a movie is being filmed. An action shot requires an object to be thrown upward with an initial velocity of 64 feet per second off the top of the plaza, a height of 720 feet. The height $h(t)$ in feet of the object after t seconds is given by the function $h(t) = -16t^2 + 64t + 720$. Determine how long before the object strikes the ground. (Hint: Let the height, $h(t)$, be 0 and solve for t .)



The object will strike the ground in _____ (1) _____
(Type a whole number.)

- (1) ☐ minutes.
☐ seconds.
☐ hours.

5. The shorter leg of a right triangle is 3 feet less than the other leg. Find the length of the two legs if the hypotenuse is 15 feet.

The length of the shorter leg of the right triangle is _____ (1) _____ and the length of the other leg of the right triangle is _____ (2) _____

- (1) ☐ ft (2) ☐ ft.
☐ ft² ☐ ft².

6. The function $W(x) = 0.5x^2$ gives the number of servings of wedding cake that can be obtained from a two-layer x -inch square wedding cake tier. What size square wedding cake tier is needed to serve 32 people?

The size of a square wedding cake tier needed to serve the given number of people is _____ (1) _____

- (1) ☐ in.
☐ in².

7. Factor the following polynomial completely.

$$a^2 + 7ya + 6y^2$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

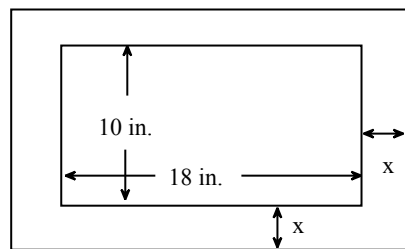
- ☐ A. $a^2 + 7ya + 6y^2 =$ _____
☐ B. The polynomial is prime.

8. Find the greatest common factor for the list of monomials.

$$x^5y^5z^4, y^2z^4, xy^2z^2$$

The GCF is _____.
(Simplify your answer.)

9. A person has a rectangular board 10 inches by 18 inches around which she wants to put a uniform border of shells. If she has enough shells for a border whose area is 128 square inches, determine the width of the border.



The width of the border is _____ (1) _____

- (1) ☐ square inches.
☐ inches.

10. Factor the trinomial completely.

$$x^2 + 9x + 31$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☐ A. $x^2 + 9x + 31 =$ _____ (Factor completely.)
- ☐ B. The polynomial is prime.