

Test

Directions:

- 1) Do the exam on paper with your hand (do not type). Write neatly.
- 2) Numerate each problem and do problems in order: 1, 2, 3,...
- 3) Do problems in one column.
- 4) Show all your work in details. Answers without work **will not be accepted**.

1. Simplify $-5\sqrt{18a^{25}b^{10}c^{16}}$

2. Simplify $(5\sqrt{3p^3q^2})(4\sqrt{6p^5q^3})$

3. a) $(\sqrt{12} - 3\sqrt{6})(5\sqrt{12} + \sqrt{6})$ b) $(\sqrt{21} + 2)^2$ c) $(\sqrt{7} - \sqrt{5})(\sqrt{7} + \sqrt{5})$

4. Rationalize the denominator

a) $\frac{27}{5\sqrt{45}}$ b) $\frac{\sqrt{x} - 8}{\sqrt{x} + 2}$

5. Solve the equation $\sqrt{2z+19} - z = 2$ Type equation here.

6. Let ABC be $30^\circ - 60^\circ$ triangle, such that $\angle B = 30^\circ$ and $\angle C = 90^\circ$. Let a , b , and c be sides opposite to corresponding angles, and $c = 30$ in. Find sides a and b . Express answers in simplest **radical** form.

7. Let ABC be $45^\circ - 45^\circ$ triangle, such that $\angle A = 45^\circ$ and $\angle C = 90^\circ$. Let a , b , and c be sides opposite to corresponding angles, and $c = 20$ cm. Find sides a and b . Express answers in simplest **radical** form.

8. The angle of depression from the top of a building to the base of a tree is 75° . The distance from the base of the building to the tree is 64 m. How tall is the building? Round your answer to the nearest hundredth.

9. A 17 ft ladder rests against the wall. Its angle of elevation from the ground is 50° . How high the ladder go along the wall? Round your answer to the nearest hundredth.

10. A ladder is leaning against the wall such that the angle of depression of the top of the ladder is 65° . What is the length of the ladder if the distance from its lowest end to the wall is 2.3 m? Round your answer to the nearest hundredth.