

Name: _____

AK

Period: _____

Date: _____

P1-P5 Practice Test 2 2017**Non-Calculator**

Directions: Show all work to receive credit. If a question is given in radical form, answer in radical form. If a question is given in exponent form, answer in exponent form. Please put final answers on the provided line.

1. Simplify

$$\frac{(9x^{1/2}y^{2/3})^{1/2}}{15x^{1/3}y^{-1}} = \frac{3x^{1/4}y^{2/6}}{15x^{1/3}y^{-1}} = \frac{1x^{3/12}y^{2/6}}{5x^{4/12}y^{-6/6}} = \frac{1y^{8/6}}{5x^{1/12}} = \frac{y^{4/3}}{5x^{1/12}}$$

2. Expand and simplify.

$$(\sqrt{2x} + \sqrt{y})(\sqrt{2x} - \sqrt{y}) \quad 2|x| - |y|$$

3. Expand and simplify.

$$\begin{aligned} 2x(5-3x) - (2x-1)^2 \\ 10x - 6x^2 - (4x^2 - 4x + 1) \\ -10x^2 + 14x - 1 \end{aligned}$$

4. Factor.

$$\begin{aligned} 2y^3 - 16 \\ 2(y^3 - 8) = 2(y-2)(y^2 + 2y + 4) \end{aligned}$$

5. Simplify and find the domain.

$$\frac{2x^2 - 2}{4x^3 - 4x^2 + x - 1} = \frac{2(x-1)(x+1)}{(4x^2+1)(x-1)} = \frac{2x+2}{4x^2+1}, x \neq 1$$

$4x^2(x-1) + 1(x-1)$
 $(4x^2+1)(x-1)$

6. Find the domain in interval notation.

$$\sqrt{2x-8}$$
$$2x-8 \geq 0$$
$$2x \geq 8$$
$$x \geq 4$$
$$[4, \infty)$$

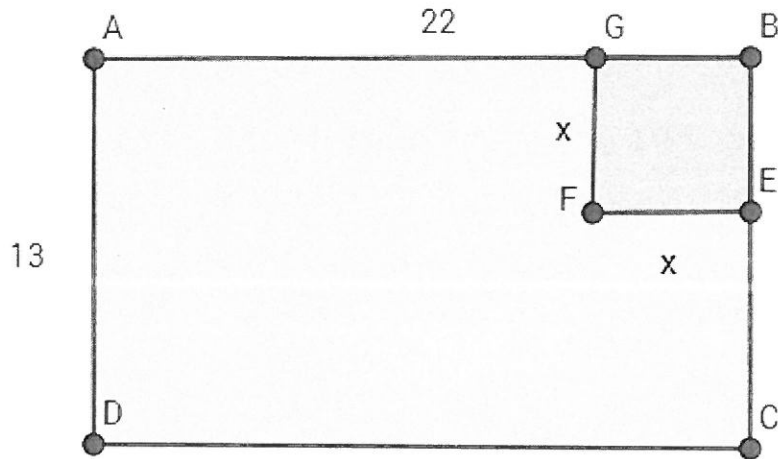
7. Rationalize the denominator.

$$\frac{\sqrt{2}}{5-\sqrt{6}} \cdot \frac{5+\sqrt{6}}{5+\sqrt{6}} = \frac{5\sqrt{2} + \sqrt{12}}{25-6} = \frac{5\sqrt{2} + 2\sqrt{3}}{19}$$

8. Factor.

$$(c+d)^2 - 4cd$$
$$(c+d)((c+d)^2 - 4cd)$$
$$c^2 + 2cd + d^2 - 4cd$$
$$(c+d)(c^2 - 2cd + d^2)$$
$$(c+d)(c-d)^2$$

9. A small backyard in Hoboken is 22 feet by 13 feet. The owner wants to put a square garden in the corner of the yard. x represents the length of one side of the garden.



a) What is the remaining area of the yard (excluding the garden) if the garden is 5 feet by 5 feet?

$$22 \cdot 13 - 25$$

$$\cancel{10} \text{ Ft}^2$$

$$261$$

b) Write a function that describes the remaining area of the yard in terms of x .

$$22 \cdot 13 - x^2$$

$$286 - x^2$$

c) What is the domain of this function?

$$0 \leq x < 13$$

10. Simplify the complex fraction, and find the domain.

$$\frac{\frac{(x+1) \cdot 1 - \frac{1}{x+1} \cdot x}{(x+1) \cdot x - \frac{x+1}{x} \cdot x}}{\frac{1}{x^2 + 2x + 1}} =$$

$$\frac{x+1-x}{x(x+1)} \cdot \frac{x^2+2x+1}{1}$$

$$\frac{1 \cdot \cancel{(x+1)}(x+1)}{x \cancel{(x+1)}}$$

$$\frac{x+1}{x}, x \neq 0, -1$$

11. Find the domain.

$$\frac{x+1}{4-x^2}$$

$$4-x^2 \neq 0$$

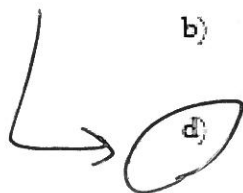
$$(2-x)(2+x) \neq 0$$

$$x \neq 2, -2$$

a) $(-\infty, -2) \cup (2, \infty)$

b) $(-\infty, -1) \cup (-1, 2) \cup (2, \infty)$

c) $(-\infty, \infty)$



d) $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$

12. Factor each expression completely.

a. $3ac + 2bc - 6ad - 4bd$

$$c(3a+2b) - 2d(3a+2b)$$

$$(c-2d)(3a+2b)$$

c. $4x^2(x-1)^{\frac{1}{3}} - 10x^3(x-1)^{-\frac{2}{3}}$

$$2x^2(x-1)^{-\frac{2}{3}} \left(2(x-1)^{\frac{3}{3}} + 5x \right)$$

$$2x^2 - 2 + 5x$$

$$\frac{2x^2(7x-2)}{(x-1)^{\frac{2}{3}}}$$