**Secondary Math 2 5.3 Homework Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_**

**Roots and Radicals**

1. **Simplify. Assume all variables are positive.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| a) | $$-\sqrt{a^{3}b^{5}c^{3}}$$ | b) | $\sqrt{192a^{3}}$  | c) | $$\sqrt{121x^{12}y^{4}}$$ |

1. **Convert each expression from radical to exponential form or from exponential to radical form.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| a) | $$\left(\sqrt[3]{10}\right)^{5}$$ | b) | $$\sqrt[3]{\left(6\right)^{2}}$$ | c) | $$\sqrt[3]{6v^{2}}$$ |
| d) | $$3^{2/5}$$ | e) | $$10^{1/4}$$ | f) | $$\left(3m\right)^{7/5}$$ |

1. **Simplify.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| a) | $$81^{1/2}$$ | b) | $$64^{4/3}$$ | c) | $$1000^{\frac{5}{3}}$$ |
| d) | $$\left(x^{5}\right)^{-2/5}$$ | e) | $$\left(x^{9}\right)^{-4/3 }$$ | f) | $$x^{3/4}⋅\sqrt[4]{x}$$ |

1. **Solve each equation.**

|  |  |  |  |
| --- | --- | --- | --- |
| a) | $$x^{1/2}=4$$ | b) | $$\sqrt{x+4}=\sqrt{3x-4}$$ |

**Review Problems:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Simplify: $$3xy∙4x^{3}$$ |  | Simplify: $$\frac{x^{4}y^{0}}{2y^{-2}∙xy^{-4}}$$ |
|  | Simplify:$$\frac{4m^{7/4}}{2m}$$ |  | Simplify:$$\left(x^{2}\right)^{5/3}⋅x^{10/3}$$ |