Name: _____

Square-Root Functions

1) Evaluate the following if possible

1) $\sqrt[6]{1,000,000}$ 2) $\sqrt[6]{-1,000,000}$ 3) $-\sqrt[6]{1,000,000}$

4) $\sqrt[5]{32}$ 5) $\sqrt[5]{-32}$ 6) $-\sqrt[5]{32}$

7) $\sqrt[4]{\frac{1}{16}}$ 8) $\sqrt[4]{-\frac{1}{16}}$ 9) $-\sqrt[4]{\frac{1}{16}}$

10) $\sqrt[3]{\frac{1}{27}}$ 11) $\sqrt[3]{-\frac{1}{27}}$ 12) $-\sqrt[3]{\frac{1}{27}}$

13) $\sqrt[5]{\frac{1}{100,000}}$ 14) $\sqrt[5]{-\frac{1}{100,000}}$ 15) $-\sqrt[5]{\frac{1}{100,000}}$

16) $\sqrt[6]{1}$ 17) $\sqrt[6]{-1}$ 18) $-\sqrt[6]{1}$

2) Evaluate the following expressions for the given values of the variables.

1) $\frac{-b+\sqrt{b^2-8c}}{c^2}$ for $b=4$ and $c=-2$.

2) $\frac{-b+\sqrt{b^2-4ac}}{2a}$ for $a=-1, b=3,$ and $c=18$.

3) Simplify each expression

1) $\sqrt{18a^2b}$ 2) $\sqrt{16r^2s^3}$

3) $\sqrt{53m^2n^4}$ 4) $\sqrt{8a^2bc^2}$

5) $\sqrt{21m^8}$ 6) $\sqrt{51g^2h^2}$

7) $\sqrt{120x^2y}$ 8) $\sqrt{17n^3}$

9) $\sqrt{75x^6y^6}$ 10) $\sqrt{66mn^4}$

11) $\sqrt{30rs^2t^4}$ 12) $\sqrt{48j^6k^2}$

4) When $5\sqrt{20}$ is written in simplest radical form, the result is $k\sqrt{5}$. What is the value of k?