

Name: Key

ID: A

## Practice Quiz 7.1 - 7.3

1. Multiply.  $(-5 - \sqrt{2})(-4 + \sqrt{2}) = -20 - 5\sqrt{2} + 4\sqrt{2} - \sqrt{4}$   
 $-20 - \sqrt{2} - 2 = \boxed{-22 - \sqrt{2}}$

Simplify the radical expression.

2.  $\sqrt[4]{81x^{20}y^{32}}$   $3x^5y^8$

3.  $\sqrt{36g^6}$   $6g^3$

4. Divide and simplify if possible.

$$\frac{\sqrt{189x^{20}}}{\sqrt{7x^2}} \sqrt{27x^8} = \boxed{3x^9\sqrt{3}}$$

$$\begin{array}{r} 27 \\ 7 \overline{)189} \\ \underline{-14} \\ 49 \end{array}$$

5. Find all the real fourth roots of  $\frac{16}{81}$ .

$$\pm \frac{2}{3}$$

6. Add or subtract if possible.

$$3\sqrt{6a} - 5\sqrt{6a}$$

$$\boxed{-2\sqrt{6a}}$$

7. Add or subtract if possible.

$$3\sqrt{5x} + 3\sqrt{5x}$$

$$\boxed{6\sqrt{5x}}$$

8. Multiply.

$$(-2 - \sqrt{6})(-2 - \sqrt{6})$$

$$\boxed{10 + 4\sqrt{6}}$$

$$\begin{array}{r} 4 + 2\sqrt{6} + 2\sqrt{6} + \sqrt{36} \\ 4 + 4\sqrt{6} + 6 \end{array}$$

9. Multiply.

$$(\sqrt{3} + \sqrt{10})(\sqrt{3} - \sqrt{10})$$

$$\begin{aligned} &\sqrt{9} - \sqrt{100} \\ &3 - 10 = \boxed{-7} \end{aligned}$$

10. Multiply and simplify if possible.

$$\sqrt{20} \cdot \sqrt{2}$$

$$\begin{aligned} &\sqrt{40} \\ &\quad \uparrow \\ &4 \quad 10 \\ &\quad \uparrow \quad \uparrow \\ &2 \quad 5 \end{aligned}$$

$$= \boxed{2\sqrt{10}}$$

Find the real-number root.

11.  $\sqrt{-1.44}$  not possible

12.  $\sqrt{1.21}$   $\pm 1.1$

13.  $\sqrt[3]{\frac{64}{125}}$   $-\frac{8}{5}$

14. Add or subtract if possible.

$$2\sqrt{8x} + 6\sqrt{2x}$$

$$\begin{aligned} &\uparrow \\ &2 \cdot 2 \end{aligned}$$

$$4\sqrt{2x} + 6\sqrt{2x}$$

$$\boxed{10\sqrt{2x}}$$

15. Rationalize the denominator.

$$\frac{\sqrt{5x^{11}y^8}}{\sqrt{2x^3y^3}}$$

$$\frac{\sqrt{2x^3y^3}}{\sqrt{2x^3y^3}}$$

$$= \frac{\sqrt{10x^{14}y^{11}}}{2x^3y^3}$$

$$= \frac{x^7y^5\sqrt{10y}}{2x^3y^3}$$

$$= \boxed{\frac{x^4y^2\sqrt{10y}}{2}}$$

16. Add or subtract if possible.

$$4\sqrt{3} - 3\sqrt{4}$$

$$4\sqrt{3} - 3(2)$$

$$\boxed{4\sqrt{3} - 6}$$

17. Simplify.

$$-\sqrt{7} - 6\sqrt{16} - 4\sqrt{7}$$

$$-\sqrt{7} - 6(4) - 4\sqrt{7}$$

$$\boxed{-5\sqrt{7} - 24}$$

18. Rationalize the denominator of the expression.

$$\frac{(\sqrt{3} - \sqrt{6})\sqrt{8}}{\sqrt{8}} = \frac{\sqrt{24} - \sqrt{48}}{8} = \frac{2\sqrt{6} - 4\sqrt{3}}{8} = \boxed{\frac{\sqrt{6} - 2\sqrt{3}}{4}}$$

48  
6^8  
3^2

19. Simplify  $\sqrt[3]{-27a^{13}b^{12}}$ .

$$\boxed{-3a^4b^4\sqrt[3]{a}}$$

20. Multiply and simplify

$$\sqrt[3]{5x^7} \cdot \sqrt[3]{9x^5}$$

$$\sqrt[3]{45x^{12}}$$

$$\boxed{x^4\sqrt[3]{45}}$$

45  
9^5  
3^3

Simplify and do not use negative exponents

21.  $(x^4y^3)(x^5y^9)$

$$x^9y^{12}$$

22.  $(4x^3y^{-3}z^4)^2$

$$16x^6y^{-6}z^8$$

$$= \boxed{\frac{16x^6z^8}{y^6}}$$

23.  $\frac{x^4y^3z^2}{xy^5z^2}$

$$= \boxed{\frac{x^3}{y^2}}$$

24.  $(abc)^0$

$$= \boxed{1}$$