

**N.RN.A.2: Radicals and Rational Exponents 6**

- 1 Find the value of the following expression when  $x = 4$ ,  $y = 8$ ,  $a = 3$ ,  $b = 5$ :

$$(4x^{\frac{1}{2}} - a^{-1}(y^{\frac{1}{3}} + \sqrt{x + b}))^3$$

- 2 Find the numeric value of the following expression when  $x = 4$ ,  $y = 3$ ,  $m = 1$ ,  $n = 2$ :

$$\frac{3x^n}{ny} - 2mx^{-\frac{1}{2}}y^m + 2nx^{-m}y^2$$

3 Simplify:  $5\sqrt{27} \div 3\sqrt{24}$

4 Simplify:  $3\sqrt{2} \div 2\sqrt[3]{3}$

5 Simplify:  $\sqrt{5} \times \sqrt[3]{2} \times \sqrt[4]{4}$

6 Simplify:  $\left(\frac{\sqrt{18} \times \sqrt{12}}{\sqrt{27}}\right)^3$

7 Simplify:  $\sqrt[3]{40} - \sqrt[3]{135}$

8 Simplify:  $3\sqrt{18x^3}$

9 Simplify:  $\sqrt{a^{\frac{1}{2}}}$

10 Simplify:  $\left(\sqrt{a^6}\right)^{\frac{1}{2}}$

11 Simplify:  $\sqrt{a^2x + a^4}$

12 Simplify:  $\sqrt{a^4b^2 - a^2b^4}$

13 Simplify:  $(\sqrt{x} - \sqrt{y})^2$

14 Simplify:  $\sqrt{a} + 2\sqrt{ab^2}$

15 Simplify:  $\sqrt{20a^3} + \sqrt{45a^5}$

16 Simplify:  $2ax\sqrt{45} + ax\sqrt{20}$

17 Find the sum of  $\sqrt{12a^3}$  and  $\sqrt{27a^5b^2}$ .

18 Simplify:  $3\sqrt{242x^5y^5} + 11xy\sqrt{2x^3y^3}$

19 Simplify:  $\sqrt[3]{16a^4b^3}$

20 Simplify:  $\sqrt[3]{56x^4y}$

21 Simplify:  $\sqrt[5]{-243a^6b^{12}}$

22 Simplify:  $\sqrt{a^3} \times \sqrt[3]{a^2}$

23 Simplify:  $\sqrt[3]{ab^2} \times \sqrt{ab^3}$

24 Simplify:  $\sqrt{\frac{a}{b}} \times \sqrt{\frac{b}{a}}$

25 Simplify:  $\frac{\sqrt[3]{\frac{a^2}{b}}}{\sqrt[3]{\frac{a}{b^2}}}$

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**Answer Section**

1 ANS:  
125

REF: 039305al

2 ANS:  
14

REF: 019414al

3 ANS:  
 $\frac{5\sqrt{2}}{4}$

REF: 039114al

4 ANS:  
 $\sqrt[6]{\frac{81}{8}}$

REF: 099511al

5 ANS:  
 $\sqrt[6]{4000}$

REF: 019013al

6 ANS:  
 $16\sqrt{2}$

REF: 039309al

7 ANS:  
 $-\sqrt[3]{5}$

REF: 019111al

8 ANS:  
 $9x\sqrt{2x}$

REF: 119313al

9 ANS:  
 $\sqrt[4]{a}$

REF: 099414al

10 ANS:  
 $a\sqrt{a}$

REF: 119411al

11 ANS:

$$a\sqrt{x+a^2}$$

REF: 089312al

12 ANS:

$$ab\sqrt{a^2-b^2}$$

REF: 019415al

13 ANS:

$$x-2\sqrt{xy}+y$$

REF: 039309al

14 ANS:

$$(2b+1)\sqrt{a}$$

REF: 099511al

15 ANS:

$$(2a+3a^2)\sqrt{5a}$$

REF: 119313al

16 ANS:

$$8ax\sqrt{5}$$

REF: 089312al

17 ANS:

$$(2a+3a^2b)(\sqrt{3a})$$

REF: 119209al

18 ANS:

$$44x^2y^2\sqrt{2xy}$$

REF: 019111al

19 ANS:

$$2ab^3\sqrt[3]{2a}$$

REF: 089413al

20 ANS:

$$2x^3\sqrt[3]{7xy}$$

REF: 119313al

21 ANS:

$$-3ab^2\sqrt[5]{ab^2}$$

REF: 069108al

22 ANS:  
 $a^2 \sqrt[6]{a}$

REF: 119411al

23 ANS:  
 $b^2 \sqrt[6]{a^5 b}$

REF: 039413al

24 ANS:  
1

REF: 089312al

25 ANS:  
 $\sqrt[3]{ab}$

REF: 019415al