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RADICAL EQUATIONS: Worksheet 2

Simplify the following.

1) $\sqrt{45}$ 2) $\sqrt{125}$ 3) $\sqrt{1000}$ 4) $\sqrt{8}$

5) $8\sqrt{2}+3\sqrt{2}$ 6) $7\sqrt{3}+\sqrt{7}-3\sqrt{3}+4\sqrt{7}$

7) $9\sqrt{x}+2\sqrt{x}$ 8) $3\sqrt{5}-2\sqrt{3}-5\sqrt{5}$

9) $8\sqrt{2}\bullet\sqrt{2}$ 10) $3\sqrt{2}\bullet 5\sqrt{3}$ 11) $\sqrt{x+1}\bullet\sqrt{x+1}$

12) $5\sqrt{10}\bullet 2\sqrt{2}$ 13) $3\sqrt{x}\bullet 5\sqrt{x}$ 14) $\sqrt{2}\left(\sqrt{5}+\sqrt{2}\right)$

15) $2\sqrt{2}\left(7+\sqrt{2}\right)$ 16) $\sqrt{3}\left(\sqrt{3}+5\sqrt{2}\right)$ 17) $4\sqrt{2}\left(\sqrt{2}-3\right)$

18) $\dfrac{3}{\sqrt{5}}$ 19) $\dfrac{1}{\sqrt{2}}$

20) $\frac{7}{\sqrt{y}}$

21) $\frac{3}{\sqrt{x+2}}$

Solve each radical equation.

22) $\sqrt{4x} = 6$

23) $\sqrt{3x} = 12$

24) $\sqrt{x-2} = 3$

25) $\sqrt{8t-8} = 20$

26) $\sqrt{9x-1} = 1$

27) $\sqrt{x+7} - 4 = -1$

28) $\sqrt{5b+4} + 6 = 13$

29) $\sqrt{12t} - 9 = -3$

30) $\sqrt{x+2} + 8 = 9$

KEY
RADICAL EQUATIONS: Worksheet 2

Simplify the following.

1) $\sqrt{45}$
$3\sqrt{5}$

2) $\sqrt{125}$
$5\sqrt{5}$

3) $\sqrt{1000}$
$10\sqrt{10}$

4) $\sqrt{8}$
$2\sqrt{2}$

5) $8\sqrt{2}+3\sqrt{2}$
$11\sqrt{2}$

6) $7\sqrt{3}+\sqrt{7}-3\sqrt{3}+4\sqrt{7}$
$4\sqrt{3}+5\sqrt{7}$

7) $9\sqrt{x}+2\sqrt{x}$
$11\sqrt{x}$

8) $3\sqrt{5}-2\sqrt{3}-5\sqrt{5}$
$-2\sqrt{5}-2\sqrt{3}$

9) $8\sqrt{2}\bullet\sqrt{2}$
16

10) $3\sqrt{2}\bullet 5\sqrt{3}$
$15\sqrt{6}$

11) $\sqrt{x+1}\bullet\sqrt{x+1}$
$x+1$

12) $5\sqrt{10}\bullet 2\sqrt{2}$
$20\sqrt{5}$

13) $3\sqrt{x}\bullet 5\sqrt{x}$
$15x$

14) $\sqrt{2}\left(\sqrt{5}+\sqrt{2}\right)$
$\sqrt{10}+2$

15) $2\sqrt{2}\left(7+\sqrt{2}\right)$
$14\sqrt{2}+4$

16) $\sqrt{3}\left(\sqrt{3}+5\sqrt{2}\right)$
$3+5\sqrt{6}$

17) $4\sqrt{2}\left(\sqrt{2}-3\right)$
$8-12\sqrt{2}$

18) $\dfrac{3}{\sqrt{5}}$
$\dfrac{3}{\sqrt{5}}\bullet\dfrac{\sqrt{5}}{\sqrt{5}}=\dfrac{3\sqrt{5}}{5}$

19) $\dfrac{1}{\sqrt{2}}$
$\dfrac{1}{\sqrt{2}}\bullet\dfrac{\sqrt{2}}{\sqrt{2}}=\dfrac{\sqrt{2}}{2}$

20) $\dfrac{7}{\sqrt{y}}$

$\dfrac{7}{\sqrt{y}} \bullet \dfrac{\sqrt{y}}{\sqrt{y}} = \dfrac{7\sqrt{y}}{y}$

21) $\dfrac{3}{\sqrt{x+2}}$

$\dfrac{3}{\sqrt{x+2}} \bullet \dfrac{\sqrt{x+2}}{\sqrt{x+2}} = \dfrac{3\sqrt{x+2}}{x+2}$

Solve each radical equation.

22) $\sqrt{4w} = 6$

$\left(\sqrt{4w}\right)^2 = 6^2$
$4w = 36$
$w = 9$

23) $\sqrt{3x} = 12$

$\left(\sqrt{3x}\right)^2 = 12^2$
$3x = 144$
$x = 48$

24) $\sqrt{x-2} = 3$

$\left(\sqrt{x-2}\right)^2 = 3^2$
$x - 2 = 9$
$x = 11$

25) $\sqrt{8t-8} = 20$

$\left(\sqrt{8t-8}\right)^2 = 20^2$
$8t - 8 = 400$
$8t = 408$
$t = 51$

26) $\sqrt{9x-1} = 1$

$\left(\sqrt{9x-1}\right)^2 = 1^2$
$9x - 1 = 1$
$9x = 2$
$x = \dfrac{2}{9}$

27) $\sqrt{x+7} - 4 = -1$

$\sqrt{x+7} = 3$
$\left(\sqrt{x+7}\right)^2 = 3^2$
$x + 7 = 9$
$x = 2$

28) $\sqrt{5b+4} + 6 = 13$

$\sqrt{5b+4} = 7$
$\left(\sqrt{5b+4}\right)^2 = 7^2$
$5b + 4 = 49$
$5b = 45$
$b = 9$

29) $\sqrt{12t} - 9 = -3$

$\sqrt{12t} = 6$
$\left(\sqrt{12t}\right)^2 = 6^2$
$12t = 36$
$t = 3$

30) $\sqrt{x+2} + 8 = 9$

$\sqrt{x+2} = 1$
$\left(\sqrt{x+2}\right)^2 = 1^2$
$x + 2 = 1$
$x = -1$