1. Simplify $\sqrt{4x^9y^4}$.

   a) $2x^4y^2\sqrt{x}$
   b) $2x^5y^2$
   c) $4x^5y^2\sqrt{x}$
   d) $2x^4y\sqrt{x}$
   e) $2x^4y^3\sqrt{x}$

2. Simplify $4\sqrt{12x^5} - 8\sqrt{27x^5} + 3\sqrt{48x^5}$.

   a) $-4x^2\sqrt{3}$
   b) $44x^3$
   c) $-4x\sqrt{3x}$
   d) $-4x^2\sqrt{3x}$
   e) $44x^2\sqrt{3x}$

3. Multiply and simplify $(\sqrt{13x} + \sqrt{2z})(\sqrt{13x} - \sqrt{2z})$.

   a) $26\sqrt{x} + 4\sqrt{z}$
   b) $13x - 2z$
   c) $2x + 13z$
   d) $13x + 2z$
   e) $2x - 13z$

4. Rationalize the denominator and simplify $\dfrac{\sqrt{a}}{\sqrt{a} - 10}$.

   a) $\dfrac{a + 10\sqrt{a}}{a - 100}$
   b) $\sqrt{a}$
   c) $\dfrac{a + 10\sqrt{a}}{a - 10}$
   d) $\dfrac{10\sqrt{a}}{a - 100}$
   e) $\dfrac{11a}{a - 100}$

5. Solve $\sqrt{3x + 6} = \sqrt{5x - 1}$.

   a) $\left\{\dfrac{7}{2}\right\}$
   b) $\{4, 5\}$
   c) $\{3\}$
   d) $\left\{\dfrac{2}{7}\right\}$
   e) $\{6\}$

6. Solve $\sqrt{-4x + 13} = x - 2$.

   a) $\{3\}$
   b) $\{-2\}$
   c) $\{2\}$
   d) $\{-3\}$
   e) $\varnothing$

7. Write $12x^{\frac{8}{11}}$ in radical form.

   a) $\sqrt{x^{11}}$
   b) $12\sqrt[11]{x^8}$
   c) $\sqrt[11]{12x^8}$
   d) $\dfrac{1}{12\sqrt[11]{x^8}}$
   e) $12\sqrt[8]{x^{11}}$

8. Simplify $\dfrac{10b^{\frac{1}{8}}}{2b^{\frac{9}{8}}}$.

   a) $\left(\dfrac{5}{b}\right)^{\frac{9}{8}}$
   b) $\dfrac{5}{b}$
   c) $5b$
   d) $\dfrac{b}{5}$
   e) $\dfrac{5}{b^{\frac{9}{8}}}$

9. Write $(-4i)(-9 - 6i)$ in standard form.

   a) $-24 + 36i$
   b) $-36 + 24i$
   c) $24 - 36i$
   d) $-36 - 24i$
   e) $24 + 36i$

10. Write $\dfrac{-6 + 18i}{-1 + i}$ in standard form.

    a) $24 + 12i$
    b) $-6 + 12i$
    c) $-12 + 6i$
    d) $12 - 6i$
    e) $24 - 12i$

11. Solve $3\sqrt{x} = x + 2$.

a) $\{-1, 4\}$

b) $\{4\}$

c) $\{1\}$

d) $\{-4, 1\}$

e) $\{1, 4\}$

12. Solve $2(x + 8)^2 - 9 = 63$.

a) $\{0\}$

b) $\{-14, -2\}$

c) $\{-17, 3\}$

d) $\{-7, 5\}$

e) $\{-13, -6\}$

13. Solve $2n^2 + 7n - 4 = 0$.

a) $\left\{4, \frac{1}{2}\right\}$

b) $\{-2, 1\}$

c) $\left\{-4, \frac{1}{2}\right\}$

d) $\{-1, 2\}$

e) $\left\{-4, -\frac{1}{2}\right\}$

14. Solve $(x - 3)^2 = 112$.

a) $\{3 \pm 4\sqrt{7}\}$

b) $\{3 \pm 5\sqrt{7}\}$

c) $\{3 \pm 5\sqrt{3}\}$

d) $\{-3 \pm 4\sqrt{7}\}$

e) $\{-3 \pm 4\sqrt{3}\}$

15. Find the sum of the roots of $x(70x + 73) = 8$.

a) $-\frac{73}{70}$

b) $\frac{8}{70}$

c) $\frac{73}{70}$

d) $-\frac{8}{70}$

e) $\frac{70}{73}$

16. Find the product of the roots of $16x^2 - 22x - 3 = 0$.

a) $\frac{11}{16}$

b) $-\frac{3}{16}$

c) $-\frac{11}{16}$

d) $\frac{3}{16}$

e) $\frac{3}{22}$

17. Solve the equation $\frac{36}{x - 3} + \frac{12}{x} = 14$.

a) $\left\{\frac{1}{7}, 6\right\}$

b) $\left\{\frac{1}{7}, 4\right\}$

c) $\left\{\frac{1}{13}, 6\right\}$

d) $\left\{\frac{3}{13}, 4\right\}$

e) $\left\{\frac{3}{7}, 6\right\}$

18. Two positive integers differ by 2 and their product is 15. Find the sum of these two numbers.

a) 12

b) 24

c) 7

d) 8

e) 14

19. Solve the inequality $(x - 1)(2x - 3) \leq 0$.

a) $(-\infty, 1) \cup \left(\frac{3}{2}, \infty\right)$

b) $(-\infty, -2] \cup [1, \infty)$

c) $\left[1, \frac{3}{2}\right]$

d) $(-\infty, -2) \cup (1, \infty)$

e) $(-\infty, 2) \cup (3, \infty)$

20. Solve the inequility $\frac{9x-5}{x} \geq 0$.

a) $(-\infty, 5) \cup (9, \infty)$

b) $(-\infty, 0) \cup \left[\frac{5}{9}, \infty\right)$

c) $(-\infty, 5] \cup [9, \infty)$

d) $(-\infty, -9) \cup (5, \infty)$

e) $(-\infty, -9] \cup [5, \infty)$

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ITEM NO.	FORM: A
1	A
2	D
3	B
4	A
5	A
6	A
7	B
8	B
9	A
10	D
11	E
12	B
13	C
14	A
15	A
16	B
17	E
18	D
19	C
20	B