

Final Review #5 - Radicals/Rationals (Unit E&10)

Date _____ Period _____

Evaluate the equation when X = 3. Give me a DECIMAL answer.

1) $f(x) = \sqrt{x+2}$

2) $f(x) = \sqrt{3x-1}$

Classify the following numbers using the real number system. (List ALL categories that the number belongs to)

3) 15

4) -2.1

5) 0

6) $\sqrt{16}$

7) π

8) -7

9) Which option simplifies to an IRRATIONAL number?

10) Which option simplifies to a RATIONAL number?

$\sqrt{10} \cdot \sqrt{40}$

$\sqrt{10} + \sqrt{20}$

$(\sqrt{5})^2$

$\sqrt{1} + \sqrt{2}$

$\sqrt{\frac{1}{4}} + \sqrt{\frac{9}{16}}$

$\sqrt{2} \cdot \sqrt{8}$

$\sqrt{\frac{3}{4}} + \sqrt{\frac{1}{2}}$

$\sqrt{4} \cdot \sqrt{8}$

Simplify.

11) $\sqrt{16x^3}$

12) $\sqrt{98x^4}$

13) $\sqrt{108v^4}$

14) $4\sqrt{128a^3b^4}$

15) $-3\sqrt{8xy^4}$

16) $-8\sqrt{48m^2np}$

17) $\frac{\sqrt{8}}{\sqrt{12}}$

18) $\sqrt{\frac{9}{2}}$

19) $\frac{2}{\sqrt{3}}$

20) $\sqrt{\frac{2}{5}}$

Solve each equation. Remember to check for extraneous solutions.

21) $\sqrt{4r+9} = 7$

22) $-6\sqrt{12-2v} = -24$

23) $\sqrt{2-r} = \sqrt{-1-2r}$

24) $\sqrt{2x-4} = \sqrt{16-2x}$

Simplify each expression.

25) $\frac{x-6}{12x^2-16x} + \frac{x+5}{12x^2-16x}$

26) $\frac{3x-8}{2x-2} + \frac{x+4}{2x-2}$

27) $\frac{m^2+2m-8}{m+4} \cdot \frac{m-3}{3m}$

28) $\frac{10}{10k-80} \cdot \frac{7}{k-6}$

29) $\frac{8y}{6x^3y^2} \div \frac{2y}{9x^5}$

30) $\frac{x^2-3x-70}{3x-30} \div \frac{8x^2+56x}{x-6}$

Answers to Final Review #5 - Radicals/Rationals (Unit E&10)

- | | | |
|--|-----------------------------------|--|
| 1) 2.24 | 2) 2.83 | 3) Real, Rational, Integer, Whole, Natural |
| 4) Real, Rational | 5) Real, Rational, Integer, Whole | |
| 6) Real, Rational, Integer, Whole, Natural | 7) Real, Irrational | |
| 8) Real, Rational, Integer | 9) $\sqrt{10} + \sqrt{20}$ | 10) $(\sqrt{5})^2$ |
| 11) $4x\sqrt{x}$ | 12) $7x^2\sqrt{2}$ | 13) $6v^2\sqrt{3}$ |
| 15) $-6y^2\sqrt{2x}$ | 16) $-32m\sqrt{3np}$ | 14) $32b^2a\sqrt{2a}$ |
| | | 17) $\frac{\sqrt{6}}{3}$ |
| | | 18) $\frac{3\sqrt{2}}{2}$ |
| 19) $\frac{2\sqrt{3}}{3}$ | 20) $\frac{\sqrt{10}}{5}$ | 21) $\{10\}$ |
| | | 22) $\{-2\}$ |
| 23) $\{-3\}$ | 24) $\{5\}$ | 25) $\frac{2x-1}{12x^2-16x}$ |
| | | 26) 2 |
| 27) $\frac{(m-3)(m-2)}{3m}$ | 28) $\frac{7}{(k-8)(k-6)}$ | 29) $\frac{6x^2}{y^2}$ |
| | | 30) $\frac{x-6}{24x}$ |