

Math 1021 Review for Test 2 – Answer Key

1) $x = 9$ 2) $x = 1/4$ 3) $x = 4, x = 5$ 4) $x = 12$ 5) $x = -2$

6) a. $f(1) = \sqrt{2}, f(2) = \sqrt{-1}$ Does not exist as a real number

b. $g(4) = \frac{1}{2}, g(1) = 1$

7) a. $(-\infty, \frac{5}{3}]$ b. $(0, \infty)$

8) a. $5|t|$ b. $|x + 1|$ c. $-\frac{1}{3}$ d. -5

e. Does not exist as a real number f. $-5\sqrt[3]{5}$

9) a. $2xz y^2 \sqrt{3xy}$ b. $\frac{2a^2}{3b} \sqrt[3]{a}$ c. $\sqrt[12]{2^4 3^3}$ d. $\sqrt[12]{w}$ e. $\frac{3}{2} x^2$

10) a. $\frac{\sqrt{5x}}{x}$ b. $\sqrt[3]{x^2}$ c. $\frac{\sqrt{x}+1}{x-1}$ d. $\frac{y \sqrt[3]{9x^2y}}{3x^2}$ e. -1

11) a. $(x + 1)^{\frac{15}{2}}$ b. $(x - 1)^{\frac{3}{2}}(x - 2)^{\frac{3}{2}}$ c. $(x)^{\frac{1}{6}}$

12) a. $9x^2$ b. $\frac{2x^2}{y}$ c. $\frac{y}{x^{1/2}}$ or rationalized $\frac{y\sqrt{x}}{x}$

d. $\frac{a^{\frac{4}{5}}}{\frac{5}{3^2} \frac{7}{b^3}}$ e. $\sqrt[3]{4x}$

13) a. $11a^2$ b. $(1 - 2b)\sqrt{6b}$ c. $9 - x$

d. $4a - 12\sqrt{ab} + 9b$ e. $8\sqrt[3]{y^2} - 4y$ f. $2y\sqrt[3]{9x^2}$

g. $(10y + 7)\sqrt[3]{2y}$ h. $\sqrt[4]{x - 1}$

14) Together it would take $5 \frac{1}{7}$ hr.

15) The speed of the boat in still water is 24 mph.

16) They would need $14 \frac{2}{17}$ gallons of paint.

17) 30 lb pounds of force will be needed to compress the same spring 5 in.