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Piecewise Function problem 1

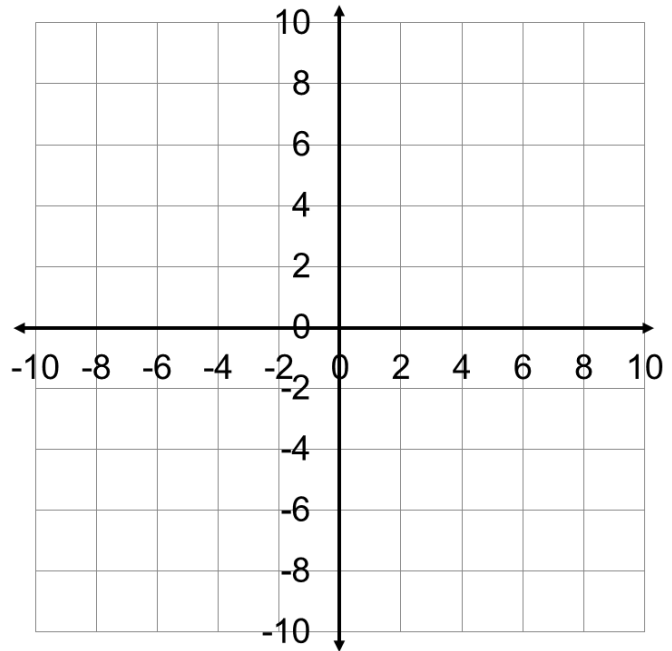
Given $f(x) = \begin{cases} x+1 & \text{if } x < 1 \\ 3x+2 & \text{if } x \geq 1 \end{cases}$

a) Find the domain of the function.

b) Graph the function.

c) Find the range of the function.

d) Locate any intercepts.



e) Find $f(-4)$

f) Find $f(3) + f(0)$

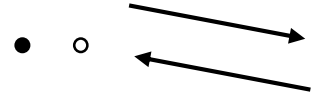
g) Find x if $f(x) = 2$

h) Find x if $f(x) = 0$

i) Find $f(3) - f(-2)$

Vocabulary Practice Test – Intermediate Algebra

Math 80 Intermediate Algebra



Fill in the blanks using the words term, factor, sum, product, quotient, base, exponent, power, index, radicand and root.

1) Given $m = \frac{y_2 - y_1}{x_2 - x_1}$ y_2 is a _____, $y_2 - y_1$ is a _____ and $\frac{y_2 - y_1}{x_2 - x_1}$ is a _____.

2) Given $(f + g)(x) = \frac{4}{x} + \frac{3}{x+2}$ 2 is a _____, $x + 2$ is a _____, $\frac{4}{x}$ is both a _____ and a _____, $\frac{3}{x+2}$ is both a _____ and a _____ and the entire right hand side is a _____.

3) Given $\left(\frac{1}{5}x - 4y^3\right)^2$ $\frac{1}{5}x$ is both a _____ and a _____, y^3 is both a _____ and a _____, $\frac{1}{5}x - 4y^3$ is a _____, $\left(\frac{1}{5}x - 4y^3\right)$ is a _____, 2 is an _____, $\frac{1}{5}$ is a _____ and a _____ and the entire expression is a _____.

4) Given $\frac{\frac{7x}{2x-2} + \frac{x}{x^2-1}}{\frac{4}{x+1} - \frac{2x^3}{3x+3}}$ $7x$ is a _____, $x^2 - 1$ is a _____, $\frac{x}{x^2-1}$ is both a _____ and a _____, $\frac{4}{x+1}$ is both a _____ and a _____, $\frac{2x^3}{3x+3}$ is a _____, x^3 is both a _____ and a _____, the 3 in x^3 is an _____, the first 3 in $3x+3$ is a _____, and the second 3 in $3x+3$ is a _____, $\frac{4}{x+1}$ is both a _____ and a _____, $\frac{4}{x+1} - \frac{2x^3}{3x+3}$ is a _____, $\frac{7x}{2x-2} + \frac{x}{x^2-1}$ is a _____, and the entire expression is a _____.

5) Given $\frac{2\sqrt{x} + \sqrt{y}}{2\sqrt{x} - \sqrt{y}}$ x is a _____, \sqrt{y} is both a _____ and a _____, 2 is a _____, $2\sqrt{x}$ is both a _____ and a _____, $2\sqrt{x} + \sqrt{y}$ is a _____, $2\sqrt{x} - \sqrt{y}$ is a _____, and $\frac{2\sqrt{x} + \sqrt{y}}{2\sqrt{x} - \sqrt{y}}$ is a _____.

6) Given $7^{\frac{x-2}{6}} = \sqrt{7}^{x-2}$ $x-2$ is a _____, $\frac{x-2}{6}$ is both a _____ and an _____, the 7 on the left is a _____, while the 7 on the right is a _____, $7^{\frac{x-2}{6}}$ is a _____ and $\sqrt{7}^{x-2}$ is a _____.

Factoring Practice Test – Intermediate Algebra

Factor completely.

1) $3x^2 + 21x + 30$

2) $28a^2 - 7$

3) $36 + 2x^2 - 22x$

4) $-18b^3 + 12b^2 - 2b$

5) $4k^3 - 16k^2 - 9k + 36$

6) $4x^4 + 12x^3 + 9x^2$

7) $1 - 64y^2$

8) $-20t^3 + 75t^2 + 20t$

9) $a^4 - a^2b^2 - 9a^2 + 9b^2$

10) $p^4 - 16$

Order of Operations Practice Test – Intermediate Algebra

Simplify.

1) $80 \div 10 \times 4 - 2 + 2 \times 2$

2) $36 \div 3(2 + 2)$

3) $16 - \{16 - [16 - (16 - 6)] + 6\}$

4) $(-7)^2 - 4(-2)(-3)$

5) $\frac{3^{2+1} - 2^{4-3}}{5} - 1 + 1$

6) $(\sqrt{9} + \sqrt{36})^2$

7) $6^2 - 12 \div 3 - 2 \sqrt[3]{27}$

8) $\sqrt{(-3-5)^2 + (3-9)^2}$

9) $\frac{6 + \sqrt{6^2 - 4(4)(2)}}{2(4)}$

10) $\frac{-9 - \sqrt{10^2 - 4(-3)(-7)}}{2(-3)}$

Exponents Practice Test – Intermediate Algebra

Simplify.

$$1) (-2h^{-3})^2$$

$$2) \left(\frac{z^{-2}}{z^2}\right)^3$$

$$3) \frac{18y^{-9}}{-6y^{-8}}$$

$$4) \left(\frac{p^{-4}}{p}\right)^2 \times \left(\frac{p^4}{p^{-1}}\right)^{-1}$$

$$5) (x^5x)^3 (x^2x^4)^{-3}$$

$$6) \left(\frac{w^7}{w^{-3}}\right)\left(\frac{w^{-9}}{w^{-2}}\right)$$

$$7) \frac{-4a^{-1}a^3}{2a^{-4}}$$

$$8) \left[\frac{(y^{-4}y^{-2})}{(y^{-11}y^5)}\right]^2$$

