

SM3 HW #3-8 (solve rational equations)

Period _____

Solve each equation. Remember to check for extraneous solutions.

1)
$$\frac{6n-1}{n} = 1 - \frac{4}{n}$$

2)
$$\frac{a+1}{4a} = \frac{a+2}{a} + \frac{3}{4}$$

3)
$$1 - \frac{x+4}{3x} = \frac{x+4}{x}$$

4)
$$\frac{m+3}{m} = \frac{5}{m} - 4$$

5)
$$\frac{3}{n^2} - \frac{n^2+3n-18}{5n^2} = \frac{1}{n}$$

6)
$$\frac{1}{a^3} + \frac{1}{2a} = \frac{3}{a^3}$$

7)
$$\frac{1}{3} + \frac{m+3}{3m^2} = \frac{5}{m^2}$$

8)
$$\frac{1}{6} - \frac{a+4}{6a^2} = \frac{2a-4}{3a^2}$$

Simplify each expression.

$$9) \frac{5}{x-2} + \frac{3}{x+4}$$

$$10) \frac{16}{\frac{x-4}{16} - \frac{1}{4}}$$

Simplify each and state the excluded values.

$$11) \frac{3a^2 + 6a + 3}{7a + 7}$$

$$12) \frac{2r^2 + 12r + 16}{2r^3 + 6r^2 + 4r}$$

Factor, then simplify.

$$13) \frac{8p-12}{6p} \cdot \frac{3}{8p-12}$$

$$14) \frac{5(n+7)}{5(n-6)} \div \frac{8n}{8n(n-8)}$$

a) Simplify the equations.

b) Identify the "excluded values of x" (which are x-values NOT in the domain)

c) identify the x-values of holes

d) What is the vertical asymptote?

e) what is the horizontal asymptote (or oblique asymptote)?

f) Identify the x-intercepts.

g) What is the y-intercept?

$$15) f(x) = \frac{x+1}{2x-2}$$

$$16) f(x) = \frac{x+4}{x(x+4)(x+2)}$$