

# CHAPTER 12 REVIEW

Pg 949 #1's 19, 20, 25-37, 41

19) 
$$\frac{30x^4 - 12x^3 + 6x^2}{-6x} = \frac{30x^4}{-6x} - \frac{12x^3}{-6x} + \frac{6x^2}{-6x}$$

$$\boxed{-5x^3 + 2x^2 - x}$$

20) 
$$\frac{9y^2 + 3y - 6}{3y - 2}$$

$$(3y-2) \overline{) 9y^2 + 3y - 6}$$

$$\begin{array}{r} 3y+3 \\ \underline{-(9y^2 - 6y)} \phantom{-6} \\ 9y - 6 \\ \underline{-(9y - 6)} \\ 0 \end{array}$$

$$\boxed{3y+3}$$

c: 
$$(3y-2)(3y+3) = 9y^2 + 9y - 6y - 6 = 9y^2 + 3y - 6$$
 ✓

25) 
$$\frac{44x^3}{24x} = \frac{11x^2}{6}$$

← FOLLOW RULES OF EXPONENTS

← SIMPLIFIED FRACTION

Excluded Values

$x \neq 0$

26) 
$$\frac{3y+6}{y+2} = \frac{3(y+2)}{(y+2)} = \boxed{3}$$

$y+2=0$

$y \neq -2$

27) 
$$\frac{3A-15}{4A-20} = \frac{3(A-5)}{4(A-5)} = \boxed{\frac{3}{4}}$$

$4A-20=0$

$A \neq 5$

28) 
$$\frac{2B-8}{-B+4} = \frac{2(B-4)}{-1(B-4)} = \boxed{-2}$$

$-B+4=0$

$B \neq 4$

FACTOR  
CANCEL  
SIMPLIFY

29

$$\frac{R^2 - 2R - 15}{R^2 + R - 6} = \frac{(R-5)(R+3)}{(R+3)(R-2)} = \boxed{\frac{R-5}{R-2}}$$

Simplified fraction

EXCLUDED VALUES

29

$$R+3=0 \Rightarrow R \neq -3$$

$$R-2=0 \Rightarrow R \neq 2$$

Look at FACTORS DEN.

30

$$\frac{S+3}{2S^2+3S-9} = \frac{S+3}{(2S-3)(S+3)} = \boxed{\frac{1}{2S-3}}$$

30

$$2S-3=0 \Rightarrow S \neq 3/2$$

$$S+3=0 \Rightarrow S \neq -3$$

31

$$\frac{2m^2+8m-24}{3m^3+24m^2+36m} = \frac{2(m^2+4m-12)}{3m(m^2+8m+12)}$$

$$= \frac{2(m+6)(m-2)}{3m(m+2)(m+6)}$$

$$= \frac{2(m-2)}{3m(m+2)} = \boxed{\frac{2m-4}{3m^2+6m}}$$

31

$$3m=0 \Rightarrow m \neq 0$$

$$m+2=0 \Rightarrow m \neq -2$$

$$m+6=0 \Rightarrow m \neq -6$$

32

$$\frac{6N^3-18N^2}{3N^3-27N} = \frac{6N^2(N-3)}{3N(N^2-9)}$$

$$= \frac{6N^2(N-3)}{3N(N+3)(N-3)}$$

$$= \frac{2N}{N+3} = \boxed{\frac{2N}{N+3}}$$

32

$$3N=0 \Rightarrow N \neq 0$$

$$N+3=0 \Rightarrow N \neq -3$$

$$N-3=0 \Rightarrow N \neq 3$$

33  $\frac{x^2 + 3x - 10}{2x - 4} \cdot \frac{5x}{x^2 + 2x - 15} =$

$\frac{\cancel{(x+5)}\cancel{(x-2)}}{2\cancel{(x-2)}} \cdot \frac{5x}{\cancel{(x+5)}(x-3)} = \boxed{\frac{5x}{2(x-3)}}$   
 $\boxed{\frac{5x}{2x-6}}$

34  $\frac{2y^6}{6y^3 + 8y^2} \cdot \frac{(3y+4)}{1}$

$\frac{2y^6}{2y^2\cancel{(3y+4)}} \cdot \frac{\cancel{(3y+4)}}{1} = \frac{2y^6}{2y^2} = \boxed{y^4}$

35  $\frac{3R^2 - 12}{R - 2} \div \frac{2R^2 + 7R + 6}{2R^2 - R - 6} =$

$\frac{3R^2 - 12}{R - 2} \cdot \frac{2R^2 - R - 6}{2R^2 + 7R + 6}$

$\frac{3(R^2 - 4)}{(R - 2)} \cdot \frac{(2R + 3)(R - 2)}{(2R + 3)(R + 2)}$

$\frac{3\cancel{(R+2)}\cancel{(R-2)}}{\cancel{(R-2)}} \cdot \frac{\cancel{(2R+3)}\cancel{(R-2)}}{\cancel{(2R+3)}\cancel{(R+2)}} = 3(R-2) = \boxed{3R-6}$

$$(36) \quad \frac{3s^2 + 11s + 10}{s+2} \div \frac{-3s^2 + s + 10}{1}$$

$$\frac{3s^2 + 11s + 10}{s+2} \cdot \frac{1}{-3s^2 + s + 10}$$

$$\frac{\cancel{(3s+5)}(s+2)}{(s+2)} \cdot \frac{1}{\cancel{-1(3s^2 - s - 10)}} \rightarrow \frac{1}{\cancel{-1(3s+5)(s-2)}}$$

$$= \frac{1}{-1(s+2)} \rightarrow \left( \frac{-1}{s+2} \right) \rightarrow \left( \frac{1}{-s-2} \right)$$

$$(37) \quad \left( \frac{4}{2t} \right) \frac{8}{5t} + \frac{3}{2t^2} \left( \frac{5}{5} \right) =$$

$$\frac{16t}{10t^2} + \frac{15}{10t^2} =$$

$$\boxed{\frac{16t + 15}{10t^2}}$$

41

$$\frac{2}{X+2} = \frac{X-5}{9}$$

$$18 = (X-5)(X+2)$$

$$\begin{array}{r} 18 \\ -18 \\ \hline \end{array} = \begin{array}{r} X^2 - 3X - 10 \\ \phantom{X^2} - 18 \\ \hline \end{array}$$

$$0 = X^2 - 3X - 28$$

$$\begin{array}{r} 1 \quad 28 \\ 2 \quad 14 \\ \hline 4 \quad 7 \end{array}$$

$$0 = (X+4)(X-7)$$

$$X+4=0$$

$$X=-4$$

$$X-7=0$$

$$X=7$$

