

9.8a Study Tip - Sample of each type of factoring (circle answer) **① FACTOR GCF**

Factor each completely.

1) $-16x^2 + 28x$

$$\boxed{-4x(4x-7)}$$

3) $5n^2 + 8n + 3$

$$\begin{array}{r} 1 \cdot 5 \\ 1 \cdot 3 \end{array}$$

$$\boxed{(5n+3)(n+1)}$$

5) $9v^2 - 16$

$$\boxed{(3v+4)(3v-4)}$$

7) $25x^2 - 40x + 16$

$$\boxed{\begin{array}{|c|} \hline (5x-4)(5x-4) \\ \hline (5x-4)^2 \\ \hline \end{array}}$$

9) $\underline{20x^3 - 16x^2} + \underline{25x - 20}$

$$4x^2(5x-4) + 5(5x-4)$$

$$\boxed{(5x-4)(4x^2+5)}$$

11) $\underline{8x^3 - 3x^2} - \underline{32x + 12}$

$$x^2(8x-3) - 4(8x-3)$$

$$(8x-3)(x^2-4)$$

$$\boxed{(8x-3)(x+2)(x-2)}$$

2) $9x^9 - 18x^4 - 18x^3$

$$\boxed{9x^3(x^6 - 2x^2 - 2)}$$

4) $5x^2 - 34x + 24$

$$\begin{array}{r} 1 \cdot 5 \\ 1 \cdot 3 \end{array}$$

$$\begin{array}{r} 2 \cdot 2 \\ 2 \cdot 1 \end{array}$$

$$\begin{array}{r} 3 \cdot 8 \\ 3 \cdot 8 \end{array}$$

$$\begin{array}{r} 4 \cdot 6 \\ 4 \cdot 6 \end{array}$$

$$\boxed{(5x-4)(x-6)}$$

6) $27x^4 - 12x^2$

$$\boxed{3x^2(9x^2-4)}$$

$$\boxed{3x^2(3x+2)(3x-2)}$$

8) $16x^2 + 40x + 25$

$$\boxed{(4x+5)(4x+5)} \text{ or } \boxed{(4x+5)^2}$$

10) $\underline{48n^3 + 42n^2} + \underline{8n + 7}$

$$6n^2(8n+7) + 1(8n+7)$$

$$\boxed{(8n+7)(6n^2+1)}$$

12) $5x^3 - 30x^2 + 40x$

$$5x(x^2 - 6x + 8)$$

$$\boxed{5x(x-2)(x-4)}$$

9.8b Study Tip - Sample of each type of factoring (circle answer)

Factor each completely.

1) $-36x^2 - 120x$

$$\boxed{-12x(3x+10)}$$

2) $-12x^3 - 6x^2 - 20x$

$$\boxed{-2x(6x^2 + 3x + 10)}$$

Factor GCF

and (-1) for negative leading coef.

3) $7n^2 - 10n + 3$

$$\begin{matrix} 1 \cdot 7 & 1 \cdot 3 \end{matrix}$$

$$\boxed{(7n-3)(n-1)}$$

5) $50x^2 - 8$

$$\begin{aligned} &2(25x^2 - 4) \\ &\boxed{2(5x-2)(5x+2)} \end{aligned}$$

7) $16n^2 - 24n + 9$

$$\begin{aligned} &\boxed{(4n-3)(4n-3)} \\ &\boxed{(4n-3)^2} \end{aligned}$$

9) $\frac{20m^3 - 4m^2}{4m^2(5m-1)} + \frac{25m - 5}{5(5m-1)}$

$$\begin{aligned} &(5m-1)(4m^2+5) \\ &\boxed{(5m-1)(4m^2+5)} \end{aligned}$$

11) $\frac{5n^3 - 3n^2}{N^2(5N-3)} - \frac{20n + 12}{4(5N-3)}$

$$\begin{aligned} &(5N-3)(N^2-4) \\ &\boxed{(5N-3)(N-2)(N+2)} \end{aligned}$$

4) $3x^2 - x - 4$

$$\begin{matrix} 1 \cdot 3 & 1 \cdot 4 \\ 2 \cdot 2 & \end{matrix}$$

$$\boxed{(3x-4)(x+1)}$$

6) $16n^2 - 225$

$$\boxed{(4n+15)(4n-15)}$$

8) $125b^2 + 50b + 5$

$$5(25b^2 + 10b + 1)$$

$$\begin{aligned} &5(5b+1)(5b+1) \\ &\boxed{5(5b+1)^2} \end{aligned}$$

10) $\frac{15n^3 + 40n^2}{5N^2(3N+8)} + \frac{3n + 8}{1(3N+8)}$

$$\boxed{(3N+8)(5N^2+1)}$$

12) $-42x^3 - 30x^2 + 12x$

$$-6x(7x^2 + 5x - 2)$$

$$\boxed{-6x(7x-2)(x+1)}$$