

9.7 Practice A

Factor each completely.

1) $4x^2 + 20x + 25 = (2x+5)(2x+5)$
 $(2x+5)^2$

2 TERMS
 PSQ - PSQ

2) $16x^2 - 24x + 9 = (4x-3)(4x-3)$
 $(4x-3)^2$

PSQ - PSQ

3) $49x^2 - 16 = (7x+4)(7x-4)$
 $+28x$ $-28x$ Middle term drops out

4) $81x^2 - 4 = (9x+2)(9x-2)$

5) $-2x^2 + 13x - 18 = -1(2x^2 - 13x + 18)$
 $(-2x-9)(x-2)$
 $-9x$ $-4x$

6) $-3x^2 + 25x - 42 = -1(3x^2 - 25x + 42)$
 $(-3x-7)(x-6)$
 $-7x$ $-18x$

7) $2x^2 - 9x - 5 = (2x+1)(x-5)$
 "a+c" prime

8) $7x^2 - 10x + 3 = (7x-3)(x-1)$

9) $5x^2 - 405 = 5(x^2 - 81)$
 $5(x+9)(x-9)$

10) $2x^2 + 22x + 20 = 2(x^2 + 11x + 10)$
 $2(x+10)(x+1)$

Your answer must include the GCF

11) $2x^2 + 36x + 162 = 2(x^2 + 18x + 81)$
 $2(x+9)^2 = 2(x+9)(x+9)$
 or

12) $3n^2 - 21n - 90 = 3(n^2 - 7n - 30)$
 $3(n+3)(n-10)$

Solve each equation by factoring. Check ALL SOLUTIONS.

13) $25x^2 - 16 = 0$

$(5x + 4)(5x - 4) = 0$ $x = 4/5, -4/5$

$$\begin{array}{r} 5x + 4 = 0 \\ -4 \quad -4 \\ \hline 5x = -4 \\ \frac{5x}{5} = \frac{-4}{5} \\ \boxed{x = -\frac{4}{5}} \end{array}$$

$$\begin{array}{r} 5x - 4 = 0 \\ +4 \quad +4 \\ \hline 5x = 4 \\ \frac{5x}{5} = \frac{4}{5} \\ \boxed{x = \frac{4}{5}} \end{array}$$

C: $25(-\frac{4}{5})^2 - 16 = 0$
 $0 = 0 \checkmark$

C: $25(\frac{4}{5})^2 - 16 = 0$
 $0 = 0 \checkmark$

14) $4x^2 + 20x + 25 = 0$ $(2x+5)(2x+5) = 0$

$(2x + 5)^2 = 0$ $x = -5/2$ or -2.5

$$\begin{array}{r} 2x + 5 = 0 \\ -5 \quad -5 \\ \hline 2x = -5 \\ \frac{2x}{2} = \frac{-5}{2} \\ \boxed{x = -5/2} \end{array}$$

C: $4(-5/2)^2 + 20(-5/2) + 25 = 0$
 $0 = 0 \checkmark$

15) $25x^2 - 36 = 0$

$(5x + 6)(5x - 6) = 0$ $x = 6/5, -6/5$

$$\begin{array}{r} 5x + 6 = 0 \\ -6 \quad -6 \\ \hline 5x = -6 \\ \frac{5x}{5} = \frac{-6}{5} \\ \boxed{x = -6/5} \end{array}$$

$$\begin{array}{r} 5x - 6 = 0 \\ +6 \quad +6 \\ \hline 5x = 6 \\ \frac{5x}{5} = \frac{6}{5} \\ \boxed{x = 6/5} \end{array}$$

C: $25(-6/5)^2 - 36 = 0$
 $0 = 0 \checkmark$

C: $25(6/5)^2 - 36 = 0$
 $0 = 0 \checkmark$

16) $4x^2 - 28x + 49 = 0$

$(2x - 7)(2x - 7) = 0$

$$\begin{array}{r} 2x - 7 = 0 \\ +7 \quad +7 \\ \hline 2x = 7 \\ \frac{2x}{2} = \frac{7}{2} \\ \boxed{x = 7/2} \text{ or } 3.5 \end{array}$$

C: $4(7/2)^2 - 28(7/2) + 49 = 0$

C: $0 = 0 \checkmark$
Test: use Calc to check and write the final stmt

Solve by completely factoring and check all solutions.
(1st step is to always factor out any GCF- COMMON FACTOR)

17) $5x^3 - 50x^2 + 105x = 0$

$5x(x^2 - 10x + 21) = 0$

$5x(x - 3)(x - 7) = 0$

$$\begin{array}{r} 5x = 0 \\ \frac{5x}{5} = \frac{0}{5} \\ \boxed{x = 0} \end{array}$$

C: $0 = 0 \checkmark$

$x - 3 = 0$
 $\boxed{x = 3}$

C: $5(3)^3 - 50(3)^2 + 105(3) = 0$
 $0 = 0 \checkmark$

$x - 7 = 0$
 $\boxed{x = 7}$

C: $5(7)^3 - 50(7)^2 + 105(7) = 0$
 $C: 0 = 0 \checkmark$