Academic Algebra 1 Name (2023 Key)

9.8 Practice B (Step 1 "Factor GCF")

Factor each completely.

1) $40x^4 - 360x^2$

$40x^2(x^2-9)$

$40x^2(x-3)(x+3)$

2) $-40x^5 + 25x^4 - 10x^3$

$-5x^3(8x^2-5x+2)$

↑ cannot factor further

3) $8x^2 - 24x + 18$

PSQ PSQ

$2(4x^2-12x+9)$

$2(2x-3)(2x-3)$

*4) $-14x^2 - 4x + 10$

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

$-2(7x-5)(x+1)$

*5) $10x^2 + 8x - 24$

$2(5x^2+4x-12)$ +,-

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

6) $32x^3 - 80x^2 + 50x$

PSQ PSQ

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

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

7) $-x^3 + 4x^2 + 21x$

$-x(x^2-4x-21)$

$-x(x-7)(x+3)$

*8) $12x^3 - 44x^2 + 24x$

$4x(3x^2-11x+6)$

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

* When the leading coef is NOT 1, put in what you KNOW; Then Guess and Check

FACTOR 4

Solve AND CHECK each equation by factoring.

9) $5x^2 - 40x + 80 = 5$

{5, 3}

$5x^2 - 40x + 75 = 0$

$5(x^2 - 8x + 15) = 0$

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

$5=0$ $x-3=0$ $x-5=0$

$x=3$ $x=5$

10) $4x^2 - 16x - 15 = 5$

{5, −1}

$4x^2 - 16x - 20 = 0$

$4(x^2 - 4x - 5) = 0$

$4(x-5)(x+1) = 0$

$4=0$ $x-5=0$ $x+1=0$

$x=5$ $x=-1$

11) $4x^3 - 32x = 4x$

{0, −3, 3}

$4x^3 - 36x = 0$

$4x(x^2 - 9) = 0$

$4x(x-3)(x+3) = 0$

$4x=0$ $x-3=0$ $x+3=0$

$x=0$ $x=3$ $x=-3$

12) $2x^3 - 20x^2 + 54x = 4x$

{0, 5}

$2x^3 - 20x^2 + 50x = 0$

$2x(x^2 - 10x + 25) = 0$

$2x(x-5)(x-5) = 0$

$2x=0$ $x-5=0$

$x=0$ $x=5$

13) $4x^3 + 36x^2 + 78x = -2x$

{0, −4, −5}

$4x^3 + 36x^2 + 80x = 0$

$4x(x^2 + 9x + 20) = 0$

$4x(x+4)(x+5) = 0$

$4x=0$ $x+4=0$ $x+5=0$

$x=0$ $x=-4$ $x=-5$