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FACTORING PART 2: Worksheet 1

Factor the following.

1) $3x(x+7)+5(x+7)$

2) $7y(y+1)-3(y+1)$

3) $t(t-5)+2(t-5)$

4) $4w(3w-7)-3(3w-7)$

Factor by grouping.

5) $x^3+3x^2+5x+15$

6) $4y^3+8y^2-5y-10$

7) $12v^3-32v^2+6v-16$

8) $6x^3+8x^2+3x+4$

Factor the following trinomials by grouping.

9) $6t^2+17t+5$

10) $12p^2+16p+5$

11) $24w^2+8w-2$

12) $9x^2+21x+10$

13) $8y^2+14y+3$

14) $16t^2+24t+9$

Solve each equation by factoring.

15) $9w^2+37w+4=0$

16) $8x^2+8x+2=0$

17) $4t^2+9t=9$

18) $5y^2+33y+18=0$

19) $24y^2-15=-54y$

20) $6x^2+7x-3=0$

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FACTORING PART 2: Worksheet 1

Factor the following.

1) $3x(x+7)+5(x+7)$
   $(x+7)(3x+5)$

2) $7y(y+1)-3(y+1)$
   $(y+1)(7y-3)$

3) $t(t-5)+2(t-5)$
   $(t-5)(t+2)$

4) $4w(3w-7)-3(3w-7)$
   $(3w-7)(4w-3)$

Factor by grouping.

5) $x^3+3x^2+5x+15$
   $x^2(x+3)+5(x+3)$
   $(x+3)(x^2+5)$

6) $4y^3+8y^2-5y-10$
   $4y^2(y+2)-5(y+2)$
   $(y+2)(4y^2-5)$

7) $12v^3-32v^2+6v-16$
   $4v^2(3v-8)+2(3v-8)$
   $(3v-8)(4v^2+2)$

8) $6x^3+8x^2+3x+4$
   $2x^2(3x+4)+1(3x+4)$
   $(3x+4)(2x^2+1)$

Factor the following trinomials by grouping.

9) $6t^2+17t+5$
   $6t^2+2t+15t+5$
   $2t(3t+1)+5(3t+1)$
   $(3t+1)(2t+5)$

10) $12p^2+16p+5$
    $12p^2+10p+6p+5$
    $2p(6p+5)+1(6p+5)$
    $(6p+5)(2p+1)$

11) $24w^2+8w-2$
    $2(12w^2+4w-1)$
    $2(12w^2+6w-2w-1)$
    $2[6w(2w+1)-1(2w+1)]$
    $2(2w+1)(6w-1)$

12) $9x^2+21x+10$
    $9x^2+15x+6x+10$
    $3x(3x+5)+2(3x+5)$
    $(3x+5)(3x+2)$

13) $8y^2+14y+3$
    $8y^2+12y+2y+3$
    $4y(2y+3)+1(2y+3)$
    $(2y+3)(4y+1)$

14) $16t^2+24t+9$
    $16t^2+12t+12t+9$
    $4t(4t+3)+3(4t+3)$
    $(4t+3)(4t+3)$

Solve each equation by factoring.

15) $9w^2+37w+4=0$
    $9w^2+36w+w+4=0$
    $9w(w+4)+1(w+4)=0$
    $(w+4)(9w+1)=0$
    $\left\{-4,-\dfrac{1}{9}\right\}$

16) $8x^2+8x+2=0$
    $2(4x^2+4x+1)=0$
    $2[4x^2+2x+2x+1]=0$
    $2[2x(2x+1)+1(2x+1)]=0$
    $2(2x+1)(2x+1)=0$
    $\left\{-\dfrac{1}{2}\right\}$

17) $4t^2+9t=9$
    $4t^2+9t-9=0$
    $4t^2+12t-3t-9=0$
    $4t(t+3)-3(t+3)=0$
    $(t+3)(4t-3)=0$
    $\left\{-3,\dfrac{3}{4}\right\}$

18) $5y^2 + 33y + 18 = 0$

$5y^2 + 30y + 3y + 18 = 0$
$5y(y+6) + 3(y+6) = 0$
$(y+6)(5y+3) = 0$
$\left\{-6, -\dfrac{3}{5}\right\}$

19) $24y^2 - 15 = -54y$

$24y^2 + 54y - 15 = 0$
$3(8y^2 + 18y - 5) = 0$
$3[8y^2 + 20y - 2y - 5] = 0$
$3[4y(2y+5) - 1(2y+5)] = 0$
$3(2y+5)(4y-1) = 0$
$\left\{-\dfrac{5}{2}, \dfrac{1}{4}\right\}$

20) $6x^2 + 7x - 3 = 0$

$6x^2 + 9x - 2x - 3 = 0$
$3x(2x+3) - 1(2x+3) = 0$
$(2x+3)(3x-1) = 0$
$\left\{-\dfrac{3}{2}, \dfrac{1}{3}\right\}$