November 18, 2021

HW: Worksheet/2-18 even, 28-52 even

Warm up:

Multiply

1) $(x + 5)(x - 2) = x^2 + 3x - 10$

2) $(2x + 4)(3x - 1) = 6x^2 + 10x - 4$

3) $(x + 6)(x - 6) = x^2 - 36$

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

HW Solutions

(5) $\frac{14x-21}{7} - \frac{10x-25}{5}$

$2x-3-(2x-5)$

$2x-3-2x+5$

2

#2 $-16x^3y - 24x^4y^3$

$-8x^3y(2 + 3xy^2)$

38 $22y^4 - 33y^3 + 11y^2$

$11y^2(2y^2 - 3y + 1)$

43 $84ab^2c^3d^4 + 126a^4b^3c^2$

$42ab^2c^2(2cd^4 + 3a^3b)$

(5) $\frac{24mn - 16n}{8n}$

$3m - 2$

(32) $18x - 12y + 36$

$6(3x - 2y + 6)$

(4) $\dfrac{9m^5 + 12m^4 - 6m^3}{-m^3}$

$-9m^2 - 12m + 6$

(46) $77r^7s^7 - 84r^8s^4$

$7r^7s^4(11s^3 - 12r)$

(44) $\dfrac{14p^3q^3 - 21p^2q^2 + 35pq}{7pq(2p^2q^2 - 3pq + 5)}$

What was special about those last two problems?

3) $(x + 6)(x - 6) = x^2 - 6x + 6x - 36$

$x^2 - 36$

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

$x^2 - 81$

So...how could you factor something like...

$x^2 - 25$

$(x - 5)(x + 5)$

Difference of Two Squares

$$a^2 - b^2 = (a + b)(a - b)$$

$x^2 - 8x + 8x - 64$

$x^2 - 64$ $(x+8)(x-8)$

$c^2 - 49$ $(c+7)(c-7)$

$b^2 - 121$ $(b+11)(b-11)$

$y^2 - 20$

Multiply Polynomials.gsp

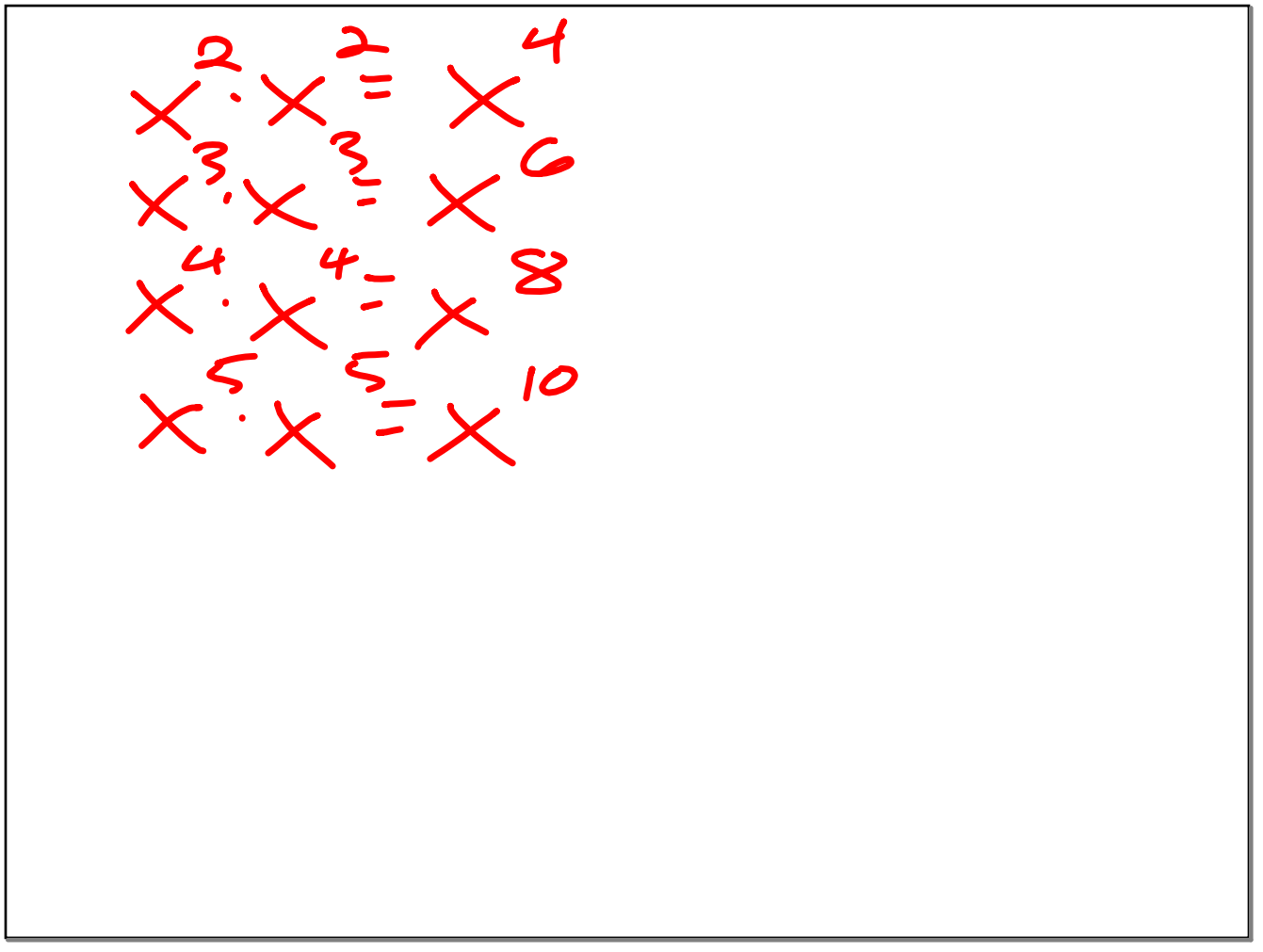
$$x^2 - 9$$

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

$$m^2 - 1$$

$$(m+1)(m-1)$$

November 18, 2021



1, 4, 9, 16, 25

November 18, 2021

$$4x^2 - 81$$

$$(2x+9)(2x-9)$$

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

November 18, 2021

$$9x^2 - 25$$

$$(3x+5)(3x-5)$$

$16a^2 - 64b^2$

$16(a^2-4b^2)$

$16(a+2b)(a-2b)$

$(4a+8b)(4a-8b)$

$4(a+2b)(4)(a-2b)$

$16(a+2b)(a-2b)$

November 18, 2021

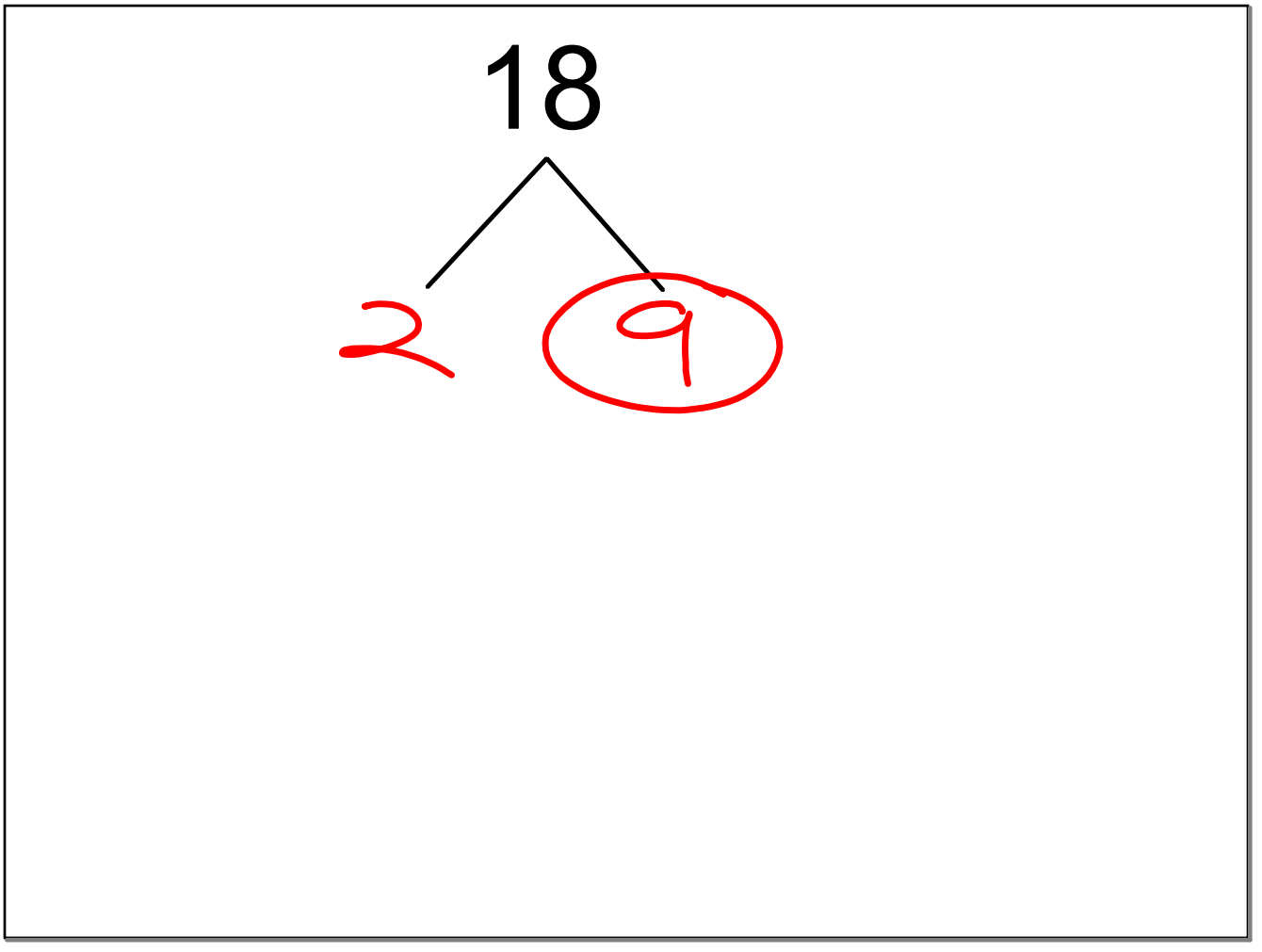
$$x^8 - y^8$$

$$(x^4+y^4)(x^4-y^4)$$

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

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

November 18, 2021



November 18, 2021

$$uv^3 - u^3v$$

$$uv(v^2 - u^2)$$

$$uv(v+u)(v-u)$$

November 18, 2021

$$x^4 \cdot x^4 = x^8$$

$$\frac{m^4 - 1}{(m^2+1)(m^2-1)}$$

$$\frac{}{(m^2+1)(m+1)(m-1)}$$

$m^4 - 5$

prime

$$2a^5 - 162a$$

$$2a(a^4 - 81)$$

$$2a(a^2+9)(a^2-9)$$

$$2a(a^2+9)(a+3)(a-3)$$

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

$(x+4)(x+4)$

$x^2+8x+16-x^2$

$(x+4 \oplus x)(x+4 \ominus x)$

$(2x+4)(4)$

$4(2x+4)$

$8(x+2)$

a^2-x^2

$(a+x)(a-x)$

November 18, 2021

Factor.

1) $25z^2 - 1$

$(5z+1)(5z-1)$

2) $169u^2 - 225$

$(13u+15)(13u-15)$

3) $49m^2 - 100n^6$

$(7m+10n^3)(7m-10n^3)$

4) $16 - c^4$

$(4+c^2)(4-c^2)$

$(4+c^2)(2+c)(2-c)$

5) $u^4 - 81v^4$

$(u^2+9v^2)(u^2-9v^2)$

$(u^2+9v^2)(u+3v)(u-3v)$

6) $5x^3 - 20x$

$5x(x^2-4)$

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

7) $36a^2 - 16a^4$

8) $(s + 2)^2 - (s - 2)^2$

7) $36a^2 - 16a^4 = 4a^2(9 - 4a^2)$

$(6a + 4a^2)(6a - 4a^2)$

$2a(3 + 2a)(2a)(3 - 2a)$

$4a^2(3 + 2a)(3 - 2a)$

8) $(s + 2)^2 - (s - 2)^2$

$(s+2 + s-2)(s+2 - (s-2))$

$(2s)(s+2-s+2)$

$(2s)(4) = 8s$

$x^2 - y^2$

$(x+y)(x-y)$

1) $25z^2 - 1$

2) $169u^2 - 225$

3) $49m^2 - 100n^6$

4) $16 - c^4$

5) $u^4 - 81v^4$

6) $5x^3 - 20x$

7) $36a^2 - 16a^4$

8) $(s + 2)^2 - (s - 2)^2$

November 18, 2021