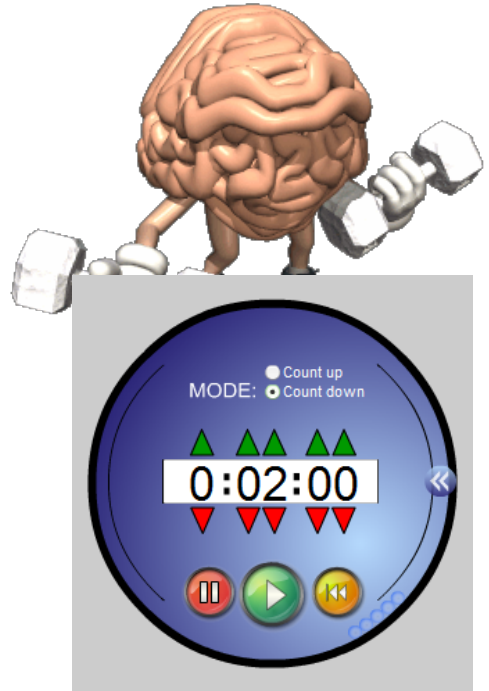


Warm Up



Expand and Simplify

$$(x-3)(x-1)(x-5)$$

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

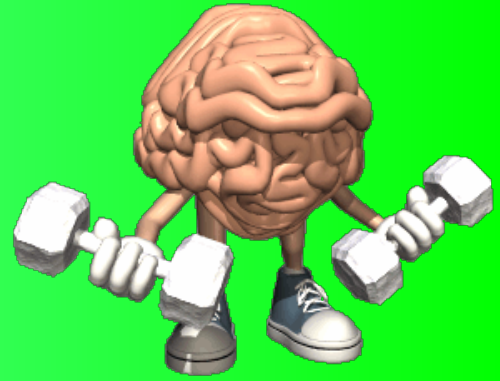
$$(x^2 - 4x + 3)(x-5)$$

$$(x^2 - 4x + 3)(x-5)$$

$$x^3 - 5x^2 - 4x^2 + 20x + 3x - 15$$

$$x^3 - 9x^2 + 23x - 15$$

Warm Up



Expand and Simplify

repeat Bracket twice

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

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

$$(x^2 - 3x - 3x + 9) - (x^2 + 2x + 2x + 4)$$

$$(x^2 - 6x + 9) - (x^2 + 4x + 4)$$

↑ add *subtract all second Bracket*

$$x^2 - x^2 - 6x - (+4x) + 9 - (+4)$$

$$\boxed{-10x + 5}$$

Expand and Simplify

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

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

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

$$(x^2 - 6x + 9)(x-3)$$

$$x^3 - 3x^2 - 6x^2 + 18x + 9x - 27 - x^2 - 4x - 4$$

$$x^3 - 10x^2 + 23x - 31$$

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

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

$$-x^2 - 4x - 4$$

Quiz tomorrow on

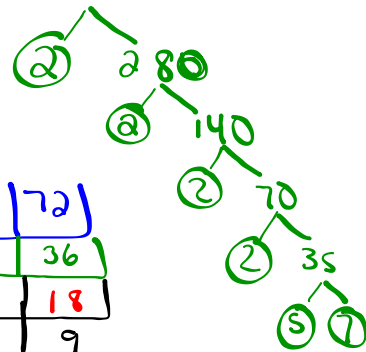


- Prime factorization (tree)

Example: Prime factorization of 560

$$560 = 2 \times 2 \times 2 \times 2 \times 5 \times 7$$

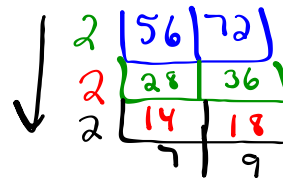
$$= 2^4 \times 5 \times 7$$



- Greatest Common Factor

Example: 56, 72

$$GCF = 2 \times 2 \times 2 = 8$$



Factor

Example: $(3xy + 6x^2y^3 - 24x)$

$$3x^1 (1y + 2xy^3 - 8)$$

- Multiplying polynomials

Example: $(2x-7)(5x+3)^2$

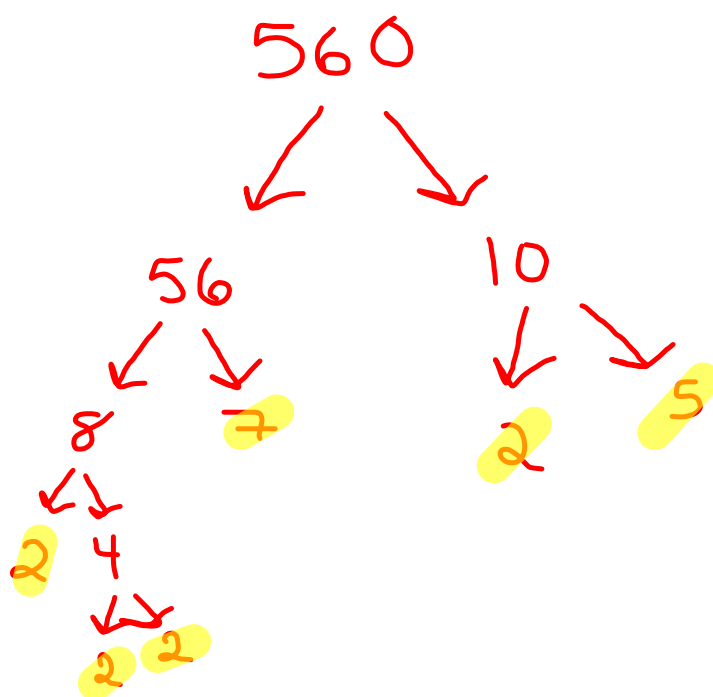
$$(2x-7)(5x+3)(5x+3)$$

$$(10x^2 + 6x - 35x - 21)(5x+3)$$

$$(10x^2 - 29x - 21)(5x+3)$$

$$50x^3 + 30x^2 - 145x^2 + 87x - 105x - 63$$

$$50x^3 - 115x^2 - 18x - 63$$

Example: Prime factorization of 560

$$2^4 \times 7 \times 5$$

Prime factor
2, 7, 5

- Greatest Common Factor

Example: 56, 72

56

1, 56

2, 28

4, 14

7, 8

72

1, 72

2, 36

3, 24

4, 18

6, 12

8, 9

$$\text{GCF} = 8$$

Factor o

Example: $(3xy + 6x^2y^3 - 24x)$

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

- Multiplying polynomials

Example: $(2x-7)(5x+3)^2$



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Questions 9cd, 15ce, ~~10c~~, 21c

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Question 1ac, 2ab, ~~4~~

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14c, 15b(iii, iv) 16(e)

~~Questions 6(a), 10, 14, 15b, 16~~

15. Expand and simplify.

$$\text{a) } (3s + 5)(2s + 2) + (3s + 7)(s + 6)$$

$6s^2 + 6s + 10s + 10 + 3s^2 + 18s + 7s + 42$

$$(9s^2 + 41s + 52)$$

$$\text{b) } (2x + 3)(5x + 4) + (x - 4)(3x - 7)$$

$$(13x^2 + 4x + 40)$$

18. Expand and simplify.

a) $(x - 2)^3$

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

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

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

$$x^3 - 2x^2 - 4x^2 + 8x + 4x - 8$$

$$(x^3 - 6x^2 + 12x - 8)$$

b) $(2y + 5)^3$

$$(8y^3 + 60y^2 + 150y + 125)$$

19. Expand and simplify.

a) $2a(2a - 1)(3a + 2)$

$$(12a^3 + 2a^2 - 4a)$$

b) $-3r(r - 1)(2r + 1)$

$$(-6r^3 + 3r^2 + 3r)$$

c) $5x^2(2x - 1)(4x - 3)$

$$(40x^4 - 50x^3 + 15x^2)$$

d) $-xy(2x + 5)(4x - 5)$

$$(-8x^3y - 10x^2y + 25xy)$$



1

Quiz

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1 c, f

2 a, b

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16 d e f

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19 d, e

21 c

Factor the common factor out of each expression.

$$1) 42ba^3 + 30ba + 18b$$

$$6b(7a^3 + 5a + 3)$$

Factor the common factor out of each expression.

$$2) -182v^4 - 154v^4u + 140v^5u^3$$

$$14v^4(-13 - 11u + 10u^3v)$$

Factor the common factor out of each expression.

$$3) -33x^2y^3 + 39x^4y^4 + 24x^4y^3$$
$$3x^2y^3(-11 + 13x^2y + 8x^2)$$

Factor the common factor out of each expression.

$$7) \ 14x^{10}y^2 - 7x^9y + 28x^8y^2$$

$$7x^8y(2x^2y - x + 4y)$$