

What Happens to People Who Don't Know Toothpaste From Putty?

Factor completely each polynomial. Find your answer below and notice the letter next to it. Write this letter in each box containing the number of that exercise.

- $3x(x^2 + 7x + 10) = 3x(x+2)(x+5)$
 R ① $3x^3 + 21x^2 + 30x$
 A ② $x^4 + x^3 - 56x^2 = x^2(x^2 + x - 56)$
 $= x^2(x+8)(x-7)$
 N ③ $x^2 + 5x + xy + 5y$
 $(x+5)(x+y)$
 T ④ $36x^3 - 64x = x(36x^2 - 64)$
 $= x(6x+8)(3x-4)$
 S ⑤ $x^2 - xd + 7x - 7d$
 $(x-d)(x+7)$
 Y ⑥ $35x^2 - 100x - 15$
 $5(7x^2 - 20x - 3)$
 F ⑦ $xy + 8x - y^2 - 8y$
 $(x-y)(y+8)$

Answers:

- V $x^2(x+28)(x+2)$
 N $(x+y)(x+5)$
 F $(x-y)(y+8)$
 R $3x(x+5)(x+2)$
 S $(x+7)(x-d)$
 M $(x-2y)(y+4)$
 A $x^2(x+8)(x-7)$
 E $5(7x+1)(x-3)$
 K $(x-7)(x^2+d)$
 T $4x(3x+4)(3x-4)$
 Y $5(7x-1)(2x+3)$

- $2a(x^2 - 11x + 30) = 2a(x-5)(x-6)$
 H ⑧ $2ax^2 - 22ax + 60a$
 U ⑨ $x^4 - y^4 = (x^2 - y^2)(x^2 + y^2) = (x-y)(x+y)(x^2 + y^2)$
 I ⑩ $x^3 - 9x + 5x^2 - 45 = (x+5)(x^2 - 9)$
 $(x+5)(x+3)(x-3)$
 D ⑪ $2ax^2 + 8ax + x + 4 = (2ax+1)(x+4)$
 L ⑫ $x^4 - 29x^2 + 100 = (x^2 - 25)(x^2 + 4)$
 $(x+5)(x-5)(x^2 + 4)$
 O ⑬ $x^2y^2 - y^2 - 15x^2 + 15$
 $y^2(x^2 - 1)(x^2 - 1)$
 $(y^2 - 15)(x+1)(x-1)$
 C ⑭ $8x^4 + 56x^3 + 98x^2$
 $2x^2(4x^2 + 28x + 49)$
 $2x^2(2x+7)^2$

Answers:

- D $(2ax+1)(x+4)$
 B $(x+5)(x-5)(x^2+3)$
 W $2x^2(2x+7)^2$
 U $(x^2+y^2)(x+y)(x-y)$
 L $(x+2)(x-2)(x+5)(x-5)$
 H $2a(x-6)(x-5)$
 P $(2ax-4)(x+1)$
 O $(y^2-15)(x+1)(x-1)$
 I $(x+5)(x+3)(x-3)$
 G $(y^2-15)(x+5)(x-2)$
 C $2a(x+15)(x-2)$

4	8	6	10	1	14	10	3	11	13	14	5	7	2	12	12	13	9	4
T	H	E	I	R	W	E	N	D	O	W	S	F	A	L	L	O	U	T