Droodle Construction-- A Puzzle with Factoring by David Pleacher

B ●

A
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● C

J
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P
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H ●

● N

L
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G ●

● U

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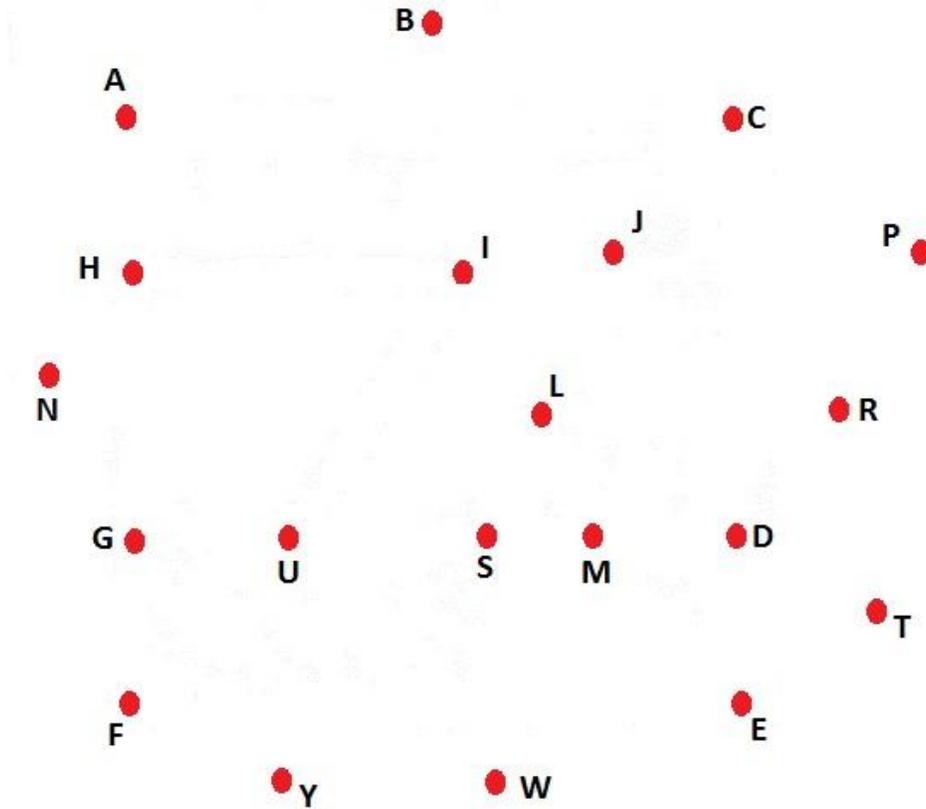
Back in 1953, Roger Price invented a minor art form called the Droodle, which he described as "a Borkley-looking sort of drawing that doesn't make any sense until you know the correct title."

You probably thought the title to this droodle was:

"__ ____ _____ ___ ____ __ _____
 7   17 19 12 20   7 11 11 12 5 12 13 14   9 10 10   3 7 9 2   9 10   17 7 5 2

__ _____ _____."
 7   18 11 10 16 13 12 13 14   16 12 9 8 19

But the real title is:

"__ _____ _____ _____ ___ _____."
 7   1 10 9 19 2 11   20 15 11 7 1 12 18   6 2 2 18 12 13 14   12 9 17   8 19 12 3 18

In this puzzle, you will draw one of Roger Price's droodles, and then determine the titles to it.

(1) First, you must factor the 20 expressions below and find the corresponding answers.

(2) Then connect the following nine pairs of letters to draw the droodle:
    Connect the letters corresponding to the answers to the following problems:
        Connect #1 and #3.   Connect #2 and #6.   Connect #2 and #8.
        Connect #3 and #17.   Connect #4 and #12.   Connect #6 and #7.
        Connect #7 and #8.   Connect #12 and #19.   Connect #14 and #18.
    These nine lines will form the droodle.

(3) Now replace each numbered blank in the puzzle with the letter corresponding to the answer for
        that problem and that will give you the two titles to the droodle.

FACTOR COMPLETELY

Factoring Problems

1. Factor $4x - 16$
2. Factor $x^2 - 16$
3. Factor $9x^2 (2x + 7) - 12x (2x + 7)$
4. Factor $x^2 + 2x - 15$
5. Factor $x^2 - 8x + 15$
6. Factor $x^2 + 6x + 9$
7. Factor $3x^2 + 2x - 8$
8. Factor $5x^2 - 17x + 6$
9. Factor $4x^2 + 10x - 6$
10. Factor $25x^2 - 9$
11. Factor $8x^3 + 1$
12. Factor $64x^6 - 8$
13. Factor $5x^2 - 100x + 500$
14. Factor $x^4 - 16$
15. Factor $x^2 + 6x + 4$
16. Factor $3x^3 - 2x^2 + 12x - 8$
17. Factor $x^5 - 3x^3 - 2x^2 + 6$
18. Factor $4x^2 + 20x + 25 - 9y^2$
19. Factor $64x^6 - 1$
20. Factor $x^4 + x^2 - 20$

Answers

A. $(3x - 4) (x + 2)$
B. $(2x - 5 - 3y) (2x + 5 + 3y)$
C. $(5x - 2) (x - 3)$
D. $(2x + 5 - 3y) (2x + 5 + 3y)$
E. $(x + 4) (x - 4)$
F. $(x + 3)^2$
G. $(x^2 + 4) (x - 2) (x + 2)$
H. $(2x - 1) (2x + 1) (4x^2 + 2x + 1) (4x^2 - 2x + 1)$
I. $8 (2x^2 - 1) (4x^4 + 2x^2 + 1)$
J. $8 (x^6 - 1)$
L. $3x (2x + 7) (3x - 4)$
M. $4 (x - 4)$
N. $5 (x - 10)^2$
O. $(5x - 3) (5x + 3)$
P. $(x - 2) (x + 2) (x^2 + 5)$
R. $(2x + 1) (4x^2 - 2x + 1)$
S. $(x^2 - 3) (x^3 - 2)$
T. $2 (2x - 1) (x + 3)$
U. $(x - 3) (x + 5)$
V. $(x - 3) (x - 5)$
W. $(3x - 2) (x^2 + 4)$
Y. Prime
Z. None of the Above