

(see next page for odds worked out)

88 Where Do Tadpoles in the Pawn Shop Come From ?

Factor each polynomial below as the product of its greatest monomial factor and another polynomial. Find your answer and notice the letter next to it. Write this letter in each box that contains the number of that exercise.

- ① $3x^2 + 18x + 9$ **A**
 ② $2x^2 + 10x + 12$ **O**
 ③ $7x^2 + 14x + 35$ **E**
 ④ $5x^2 - 20x + 10$ **F**
 ⑤ $6x^2 + 9x - 21$ **D**

Answers:

- ~~①~~ $3(2x^2 + 3x - 7)$
~~②~~ $3(2x^2 + 4x - 5)$
~~③~~ $3(x^2 + 6x + 3)$
~~④~~ $5(x^2 - 2x + 5)$
~~⑤~~ $5(x^2 - 4x + 2)$
~~⑥~~ $2(x^2 + 5x + 6)$
~~⑦~~ $7(x^2 + x + 6)$
~~⑧~~ $7(x^2 + 2x + 5)$

- ⑥ $n^3 + n^2 + n$ **A**
 ⑦ $n^4 - n^3 + n^2$ **O**
 ⑧ $2n^3 - n^2 - 5n$ **M**
 ⑨ $3n^2 + 9n$ **F**
 ⑩ $7n^2 - 28n$ **R**

Answers:

- ⑥ $n(2n^2 - 2n - 6)$
 ⑦ $n^2(n^2 - n + 1)$
 ⑧ $7n(n + 5)$
 ⑨ $3n(n + 3)$
 ⑩ $n^2(n^2 - 2n + 3)$
 ⑪ $n(n^2 + n + 1)$
 ⑫ $n(2n^2 - n - 5)$
 ⑬ $7n(n - 4)$

- ⑪ $4k^3 - 32k$ **G**
 ⑫ $6k^3 + 10k^2$ **N**
 ⑬ $5k^3 + 15k^2 + 10k$ **R**
 ⑭ $4k^3 - 20k^2 + 4$ **P**
 ⑮ $4k^4 + 18k^3 - 6k^2$ **W**

Answers:

- ⑪ $4(k^3 - 5k^2 + 1)$
 ⑫ $5k(k^2 + 3k + 2)$
 ⑬ $4(k^3 - 8k^2 + 2)$
 ⑭ $4k(k^2 - 8)$
 ⑮ $5k(k^2 + 4k + 1)$
 ⑯ $2k^2(2k^2 + 9k - 3)$
 ⑰ $2k^2(3k - 9)$
 ⑱ $2k^2(3k + 5)$

4	10	2	8	1	9	13	7	11	14	6	15	12	3	5
F	R	O	M	A	F	R	O	G	P	A	W	N	E	D

DOUBLE CROSS

Where do tadpoles in the pawn shop come from?
(work for ODDS)

$$1) \frac{3x^2}{3} + \frac{18x}{3} + \frac{9}{3}$$

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

$$3) \frac{7x^2}{7} + \frac{14x}{7} + \frac{35}{7}$$

$$7(x^2 + 2x + 5)$$

$$5) \frac{6x^2}{3} + \frac{9x}{3} - \frac{21}{3}$$

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

$$7) \frac{n^4}{n^2} - \frac{n^3}{n^2} + \frac{n^2}{n^2}$$

$$n^2(n^2 - n + 1)$$

$$9) \frac{3n^2}{3n} + \frac{9n}{3n}$$

$$3n(n + 3)$$

$$11) \frac{4k^3}{4k} - \frac{32k}{4k}$$

$$4k(k^2 - 8)$$

$$13) \frac{5k^3}{5k} + \frac{16k^2}{5k} + \frac{10k}{5k}$$

$$5k(k^2 + 3k + 2)$$

$$15) \frac{4k^4}{2k^2} + \frac{18k^3}{2k^2} - \frac{6k^2}{2k^2}$$

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

DOUBLE CROSS

1. What do you get when you cross a chicken with a centipede?

E X T R A D R U M S T I C K S
 5 8 11 14 12 2 14 1 10 13 11 6 7 4 13

2. What do you get when you cross a mink with an octopus?

A C O A T O F A R M S
 12 7 3 12 11 3 9 12 14 10 13

Factor each polynomial below as the product of its greatest monomial factor and another polynomial. Find your answer and notice the letter next to it. Each time the exercise number appears in the code, write this letter above it. Keep working and you will find out what you get from these "double crosses."

- ① $6x^2 + 9x + 27$ U
 ② $5x^3 + 30x^2 - 15x$ D
 ③ $14x^3 - 7x^2 - 35x$ O
 ④ $25x^3 - 40x^2 + 10x$ K
 ⑤ $4x^4 + 20x^3 + 12x^2$ E
 ⑥ $3x^4 + 12x^2 - 33$ I
 ⑦ $49x^4 - 14x^3 - 28x$ C

Answers:

- (E) $4x^2(x^2 + 5x + 3)$
 (L) $3(x^4 + 6x^2 + 11)$
 (O) $7x(2x^2 - x - 5)$
 (U) $3(2x^2 + 3x + 9)$
 (C) $7x(7x^3 - 2x^2 - 4)$
 (K) $5x(5x^2 - 8x + 2)$
 (B) $7x(7x^3 + 2x^2 - 3)$
 (D) $5x(x^2 + 6x - 3)$
 (I) $3(x^4 + 4x^2 - 11)$

- ⑧ $2a^2 + 12ab + 6b^2$ X
 ⑨ $6a^3 - 18ab$ F
 ⑩ $3a^2b^2 + 15ab^3$ M
 ⑪ $8a^4b^4 - 28a^3b^3 + 4a^2b^2$ T
 ⑫ $6a^4b - 10a^3b^2 - 6a^2b^3$ A
 ⑬ $7ab^5 - 56ab$ S
 ⑭ $24ab^4 + 12ab^3 - 18ab^2$ R

Answers:

- (H) $6ab^2(4b^2 - 3b - 2)$
 (X) $2(a^2 + 6ab + 3b^2)$
 (S) $7ab(b^4 - 8)$
 (M) $3ab^2(a + 5b)$
 (R) $6ab^2(4b^2 + 2b - 3)$
 (N) $4a^2b^2(2a^2b^2 - 9ab + 2)$
 (A) $2a^2b(3a^2 - 5ab - 3b^2)$
 (F) $6a(a^2 - 3b)$
 (T) $4a^2b^2(2a^2b^2 - 7ab + 1)$

Double Cross (odds work)

$$1) \frac{0x^2+9x+27}{\frac{3}{3} \quad \frac{3}{3} \quad \frac{3}{3}}$$
$$3(2x^2+3x+9)$$

$$3) \frac{14x^3-7x^2-35x^0}{\frac{7x}{7x} \quad \frac{7x}{7x} \quad \frac{7x}{7x}}$$
$$7x(2x^2-x-5)$$

$$5) \frac{4x^4+20x^3+12x^2}{\frac{4x^2}{4x^2} \quad \frac{4x^2}{4x^2} \quad \frac{4x^2}{4x^2}}$$
$$4x^2(x^2+5x+3)$$

$$7) \frac{49x^4-14x^3-28x^0}{\frac{7x}{7x} \quad \frac{7x}{7x} \quad \frac{7x}{7x}}$$
$$7x(7x^3-2x^2-4)$$

$$9) \frac{6a^3-18ab}{\frac{6a}{6a} \quad \frac{6a}{6a}}$$
$$6a(a^2-3b)$$

~~11) $\frac{8a^4b^4-28a^3b^3+4a^2b^2}{\frac{4a^2b^2}{4a^2b^2} \quad \frac{4a^2b^2}{4a^2b^2} \quad \frac{4a^2b^2}{4a^2b^2}}$~~

~~$2a^2b^2(2a^2b^2-7ab+1)$~~

$$11) \frac{8a^4b^4-28a^3b^3+4a^2b^2}{\frac{4a^2b^2}{4a^2b^2} \quad \frac{4a^2b^2}{4a^2b^2} \quad \frac{4a^2b^2}{4a^2b^2}}$$
$$4a^2b^2(2a^2b^2-7ab+1)$$

$$13) \frac{7ab^5-64ab^0}{\frac{7ab}{7ab} \quad \frac{7ab}{7ab}}$$
$$7ab(b^4-8)$$