④ Algebra - Addition and Subtraction....

1. $7mb + 3m^2 - 5b + 2mb$
   =
   =

2. $8b + 4a - 3b + 6a$

3. $7ab + 2b - 3ab + 4b$

4. $3x + 5xy - 1x - 3xy$

5. $4pm^2 + 5m^2 - 2m^2 + 2m^2$

6. $7x + 6y - 5x - 2y$

7. $3tc + 2c^2 - tc + 3c^2$

8. $4b + 5p - 2b - 4p$

9. $5m^2 + 7pm^2 - 3m^2 + 3pm^2$

10. $6mb + 8b - 7b$

11. $6bc^2 + 3c^2 - 3bc^2$

12. $5x^2 + 7xy + 5xy$

13. $4c^2 - 2c^2 + 5bc^2$

14. $5y + 7xy - 3y + 4y$

15. $4m^2 + 5m^2 + 6mb -$

16. $ab + ab + ab + 6a$

17. $5p^2m^2 - 3pm^2 + 6p$

18. $3tc + 5tc + 2tc + 3$

19. $9bc^2 + 5c^2 - 3c^2 + 10$

20. $xy + xy + 4x - x$

$-6m + 3m$

$-5m + 2m$

$-8x + 4x$

$-7a + 5a$

$-6x^2 + 2x^2$

$-9ab + 5ab$

$-8xy + 2xy$

$-5ab + 4ab$

$-3a^2 + a^2$

$-8xy + 6xy$

$8x - 10x$

$2y - 6y$

$4b - 6b$

$3m - 7m$

$3x^2 - 5x^2$

$4xy - 8xy$

$5a^2 - 7a^2$

$6bc - 8bc$

$2a^2 - 7a^2$

$5x^2y - 8x^2y$

$8x + 2y - 6y =$

$2a - 5a + 3b =$

$-4p + 2x + 2p =$

$6m + 2y - 7y =$

$-3a + 4b - 2a =$

$2x^2 - 3y - 2y =$

$4c^2 + 2a - 6c^2 =$

$-3ab + 2q + 5ab =$

$-2xy + 5x + 5xy =$

$3c^2 + 2bc^2 - 6c^2 =$

$-3x + 6x$

$-4a + 7a$

$-7b + 10b$

$-2m + 5m$

$-5y + 7y$

$-6p + 8p$

$-3xy + 7xy$

$-4ab + 6ab$

$-3x^2 + 6x^2$

$-2c^2 + 7c^2$

$-5ab + 7ab$

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

$-2m - 5m$

$-4m - 6m$

$-3x - 5x$

$-6y - 4y$

$-5p - 3p$

$-2a - 7a$

$-3xy - 4xy$

$-4a^2 - 6a^2$

$-5a^2b - 3a^2b$

$-6x^2 - 4x^2$

$-2xy - 5xy$

$-7c^2 - 3c^2$

$2x + 4y - 5x + 3y$

$-5ab + 2ab + 3a - 6a$

$-7c^2 + 2bc - 2c^2 + 4c^2$

$4m - 2m^2 + 5m^2 - 6m$

$-4xy + 2x + 7xy - 5x$

$-2a^2b - 3ab + 5ab - 4a^2b$

$2pq - 10p + 6p - 7pq$

$-12x^2y - 3xy + 10x^2y - 2x$

| # | | | # | | |
|---|---|---|---|---|---|
| 1 | $6 - 8$ | | 26 | $8x - 15x$ | |
| 2 | $-3 + 8$ | | 27 | $-7y + 3y$ | |
| 3 | $-6 - 4$ | | 28 | $-6x - 7x$ | |
| 4 | $7 - 10$ | | 29 | $-5x + x$ | |
| 5 | $-3 + 1$ | | 30 | $-8t + 2t$ | |
| 6 | $-5 + 12$ | | 31 | $7m - 12m$ | |
| 7 | $-3 - 8$ | | 32 | $-3y - 4y$ | |
| 8 | $8 - 15$ | | 33 | $8p - 4p$ | |
| 9 | $-7 - 8$ | | 34 | $-7m - m$ | |
| 10 | $-12 + 2$ | | 35 | $9x - 12x$ | |
| 11 | $-13 + 20$ | | 36 | $-7y + 8y$ | |
| 12 | $7 - 4$ | | 37 | $-9y - 9y$ | |
| 13 | $-4 + 4$ | | 38 | $12a - 4a$ | |
| 14 | $-7 - 4$ | | 39 | $-16x + 3x$ | |
| 15 | $3 - 9$ | | 40 | $15t - 21t$ | |
| 16 | $-9 + 3$ | | 41 | $-3x + 5x$ | |
| 17 | $-16 - 14$ | | 42 | $-4m - m$ | |
| 18 | $12 - 20$ | | 43 | $3y - 5y$ | |
| 19 | $-7 - 12$ | | 44 | $-12x + 16x$ | |
| 20 | $-3 + 1$ | | 45 | $-7y + y$ | |
| 21 | $-4 - 8$ | | 46 | $-8t - t$ | |
| 22 | $15 - 20$ | | 47 | $8a - 12a$ | |
| 23 | $-15 + 2$ | | 48 | $-9x + 12x$ | |

| | | | | | |
|---|---|---|---|---|---|
| 1 | $-7 \times -4$ | | 1 | $-6a \times 2b$ | |
| 2 | $8 \div -2$ | | 2 | $-3x \times -2y$ | |
| 3 | $-40 \div -4$ | | 3 | $-5 \times a \times -2 \times b$ | |
| 4 | $3 \times -7$ | | 4 | $6m \div -3$ | |
| 5 | $-3 \times 8$ | | 5 | $-12t \div 4$ | |
| 6 | $-9 \div 3$ | | 6 | $-3a \times 2a$ | |
| 7 | $12 \times -2$ | | 7 | $-4y \times -4y$ | |
| 8 | $-3 \times -2$ | | 8 | $7t \times -2 \times 2t$ | |
| 9 | $-16 \div -8$ | | 9 | $-15y \div -5$ | |
| 10 | $-10 \times -3$ | | 10 | $-2y \times -2y \times -2y$ | |
| 11 | $6 \times -2$ | | 11 | $-8m \times 4m$ | |
| 12 | $-6 \times -2$ | | 12 | $-3c \times 6d$ | |
| 13 | $20 \div -10$ | | 13 | $-2x^2 \times -3y$ | |
| 14 | $-3 \times -4 \times 2$ | | 14 | $-6m \times 2n \times -1$ | |
| 15 | $8 \times -2 \times -2$ | | 15 | $7t \times -3p \times -2$ | |
| 16 | $-4 \times -3 \times -2$ | | 16 | $-6 \times 2m \times -2$ | |
| 17 | $(-6)^2$ | | 17 | $-m \times -m$ | |
| 18 | $(-2)^3$ | | 18 | $-m \times -m \times -m$ | |
| 19 | $(-2)^4$ | | 19 | $(-3m)^2$ | |
| 20 | | | 20 | $\cdot ^3$ | |

| OBJECTIVE | MARK: /20 | OBJECTIVE | MARK: /20 |
|---|---|---|---|
| SIMPLIFY | | SIMPLIFY 1-15 2nd column | |
| 1 $5m \times 2n$ | | 1 $9c \times 3c \times c \times c$ | |
| 2 $6a \times 2b + c$ | | 2 $2m \times m \times 3m \times m$ | |
| 3 $2x \times 3y \times 4z$ | | 3 $5p \times 2p \times p \times p \times q$ | |
| 4 $9p \times 2q$ | | 4 $a \times b \times a \times b \times c \times a \times c$ | |
| 5 $12s \times 3t \times 2u$ | | 5 $3t \times 2r \times 3r$ | |
| 6 $7a \times 3a$ | | 6 $8c \times d \times 2c$ | |
| 7 $5m \times 6m$ | | 7 $8m \times 2m \times n$ | |
| 8 $8t \times t$ | | 8 $5x \times y \times 2x \times y$ | |
| 9 $9x \times 2x \times x$ | | 9 $l \times m \times 3l \times n$ | |
| 10 $5t \times 2t \times 3t$ | | 10 $y \times 2t \times 3t \times t$ | |
| 11 $7a \times 2a \times b$ | | 11 $2f \times 3g \times 4f$ | |
| 12 $8m \times 2n \times p$ | | 12 $2y \times 3z \times y \times y$ | |
| 13 $3y \times 2a \times 4y$ | | 13 $6l \times m \times l \times m \times m$ | |
| 14 $6c \times 2d \times c$ | | 14 $3s \times 2t \times 10s$ | |
| 15 $3e \times 2f \times 2f \times f$ | | 15 $9 \times h \times g \times j \times h \times g$ | |
| 16 $7l \times 2m \times l \times m$ | | 16 $a \times b \times 2c \times b \times c$ | |
| 17 $9 \times a \times b \times 2 \times a \times a \times b$ | | 17 $5p \times 2q \times 3q$ | |
| 18 $6x \times 2y \times 3z$ | | 18 $2t \times 3t \times 4r$ | |
| 19 $8b \times 2c \times b \times c \times c$ | | 19 $6p \times 2q \times p \times 10p$ | |

# Multiplication pep test

You can always × anything by anything!
Put letters in alphabetical order where necessary.

1. $3a \times 4$ .......
2. $4d \times 3$ .......
3. $2b \times 5 \times 2$ .......
4. $6 \times 3x$ .......
5. $5 \times 4y$ .......
6. $7 \times 3xy$ .......
7. $8xy \times 2$ .......
8. $9x \times 2 \times y$ .......
9. $4 \times a \times b$ .......
10. $a \times d \times b \times c$ .......
11. $5 \times 3 \times r \times t$ .......
12. $2a \times 3b$
13. $4d \times ab$ .......
14. $6c \times 2d$ .......
15. $3a \times 2y \times 5b$ .......
16. $8xy \times 2z$ .......
17. $5lm \times 3np$ .......
18. $7t \times 5r$ .......
19. $20d \times 10e$ .......
20. $a \times 3d \times 4c$ .......

If $a \times a = a^2$, then:

21. $b \times b =$ .......
22. $y \times y \times y$ .......
23. $ab \times b$ .......
24. $rs \times rs$ .......
25. $ab \times ab \times ab$ .......
26. $3ab \times ab$ .......
27. $4pq \times 2pq$ .......

28. $5m \times 3nm$ .......
29. $mm \times n$ .......
30. $rst \times rst$ .......
31. $abc \times cab$ .......
32. $abc \times bcd$ .......
33. $a^2 \times a$ .......
34. $a^2 \times a^2$ .......
35. $a^2 \times a^3$ .......
36. $3t^2 \times t$ .......
37. $3t^2 \times t^2$ .......
38. $3t^4 \times t^3$ .......
39. $3t^6 \times 2t^2$
40. $a^2b^2 \times ab$
41. $3y^2 \times 2x^2$
42. $5c^4 \times d^5$
43. $7r^5 \times 2t^5$ .......
44. $(a^2d^2)^2$ .......
45. $9b^3 \times$ itself .......
46. $10y^2 \times$ itself .......
47. $\frac{1}{2} \times 2y$ .......
48. $\frac{1}{3}$ of $3b$ .......
49. $\frac{1}{4}$ of $8rs$ .......
50. $\frac{1}{5}$ of $10x^2$ .......
51. $\frac{1}{10}$ of $10$ .......
52. $\frac{1}{10}$ of $10abc$ .......
53. $\frac{1}{10}$ of $10rs^2$ .......
54. twice $3a$
55. triple $5cd$ .......

Complete:

56. $3a \times \ldots = 6a$
57. $2ab \times \ldots = 4ab$
58. $5 \times \ldots = 5a$
59. $\ldots \times x^2 = 3x^2$
60. $m \times \ldots = m^2$
61. $n^2 \times \ldots = 3n^2$
62. $y^4 \times \ldots = y^5$
63. $y^6 \times \ldots = y^{11}$
64. $r^2 \times \ldots = r^4$
65. $10^3 \times \ldots = 10^5$
66. $2^5 \times \ldots = 2^7$
67. $4\ldots \times 3p^2q = 12p^3q^2$
68. $\frac{1}{2}r \times \ldots = 2r$
69. $\frac{1}{2}r \times \ldots = 2r^2$
70. $(\ldots)^2 = 4a^4$
71. $(\ldots)^2 = 64b^8$
72. $-3a \times -2 = \ldots$
73. $-4b \times \ldots = 8b$
74. $-5d \times \ldots = -10d^2$
75. $(-3ab)^2 = \ldots$

Total: _____

⑦ (Algebra Division)

1) $\dfrac{2^3 \times 3^2}{2^4} =$

$=$

2) $\dfrac{5^2 \times 2^3}{5 \times 2^2} =$

3) $\dfrac{4^2 \times 3^3}{4 \times 3^2} =$

4) $\dfrac{2^2 \times 3^2 \times 4^2}{3^3 \times 4}$

5) $\dfrac{x^2 y}{x^3}$

6) $\dfrac{3ab^2}{6b}$

7) $\dfrac{a^4 b}{a^3 b^2}$

8) $\dfrac{3a^3 b^2}{6x^2 y^3}$

9) $\dfrac{10 m^2 n}{12 m^4 n^3}$

10. $\dfrac{-8 x^3 y^4}{4 x^5 y^3}$

11. $12 x^4 y^2 \div 3 x^5 y$

12. $\dfrac{-8 x^3 y^5}{-10 x^2 y^6}$

13. $(-4 a^2 b) \div 6 a^3$

14. $10 c^3 d \div (-5 c^4 d^2)$

15. $(-3 a^2 b^2) \div (-6 b^3)$

16. $12 xy^3 \div (4 y^4)$

# Algebra Revision (sheet 1).

## Simplify:

$2m - 6m$

$\dfrac{-14ab^2}{7ab}$

$-3p + 7p$

$(-16xy) \div 8y$

$-3a - 6a$

$-6ab^3 \times -3b^2$

$-4x + -5x$

$a \times b \times -6b^2$

---

$4a \times -5a$

$-3c^2 + 10c^2$

$-3p \times 2q$

$5ab - 9ab$

$3ab \times -6q$

$-2x^2y - 8x^2y$

$-15x^2 \div (-3x)$

$-7x + 6y$

---

$-8a + 6 + 6a - 9$

$-4a \times (-3b) \times 2a$

$-4x - 5x + 3 - 5$

$-8ab + 6 + (-3ab) + 1$

$-3a - 3 - 5a + 7$