## Sixth Grade - Arithmetic to Algebra

1) Evaluate the following algebraic expressions at the given value(s): 7x - 4y - 12 at x = 2 and y = -2

- 10
- 8
- 6
- 15

2) Evaluate the following algebraic expressions at the given value(s): 3a - 4(a-5) at a = 4

- 33
- 24
- 2116

3) Evaluate the following algebraic expressions at the given value(s): -5(a - 4b) at a = 3 and b = -1

- -5
- -3
- -9
- -1

4) Evaluate the following algebraic expressions at the given value(s): x(2x - 4) at x = -5

- 65
- 45
- 70
- 90

5) Evaluate the following algebraic expressions at the given value(s): x + yz, at x = 1, y = 3 and z = 4



- 11
- 13
- 19
- 16

6) Evaluate the following algebraic expressions at the given value(s): (x + y)z, at x = 1, y = -3 and z = 5

- -10
- -18
- -12
- -15

7) Evaluate the following algebraic expressions at the given value(s): x + 2(y + z), at x = -1, y = 2 and z = -5

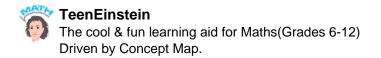
- -7
- -8
- -6
- -9

8) Evaluate the following algebraic expressions at the given value(s): (x + 2)(y + z), at x = -5, y = -3 and z = 2

- 6
- 3
- 5
- 8

9) Evaluate the following algebraic expressions at the given value(s): x - 3(y - z), at x = -3, y = 2 and z = -1

- -14
- -16
- -11



• -12

10) Evaluate the following algebraic expressions at the given value(s): (x - 3)(y - z), at x = -1, y = -3 and z = -4

- -4
- -8
- -10
- -12

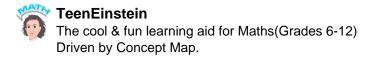
11) Simplify the following expressions in base exponent form: 3 × 3 × 3 × 3 × 3

- 3?
- 3?
- 3<sup>2</sup>
- 3?

12) Simplify the following expressions in base exponent form:  $(-3) \times (-3) \times ($ 

- -3?
- -3?
- -3<sup>3</sup>
- -3?

- a<sup>12</sup>
- a?
- a?
- a¹?



14) Simplify the following expressions in base exponent form:  $m \times m \times m \times m \times m \times m$ 

- m?
- m<sup>2</sup>
- m?
- m?

15) Simplify the following expressions in base exponent form: k × k × k × k × k

- k?
- k<sup>3</sup>
- k?
- k<sup>2</sup>

16) Simplify the following expressions in base exponent form:  $(a \times a \times a \times a \times a \times a) \div (a \times a \times a)$ 

- a<sup>3</sup>
- a?
- a
- a²

17) Simplify the following expressions in base exponent form:  $(a \times a \times a \times a) \div (a \times a \times a \times a \times a)$ 

- 2÷a
- a
- 4÷a
- 1÷a

18) Simplify the following expressions in base exponent form:  $x^2 \times x^2 \times x^$ 

- X
- X<sup>12</sup>
  X<sup>1</sup>?
- x · ·

19) Simplify the following expressions in base exponent form:  $(x^2 \times x^2 \times x^2 \times x^2 \times x^2) \div (x^3 \times x^3 \times x^3)$ 

- x
- X<sup>3</sup>
- X<sup>2</sup>
- x?

20) Simplify the following expressions in base exponent form:  $(a? \times a? \times a? \times a? \times a? \times a?) \times (a? \times a? \times a? \times a? \times a?) \times (a? \times a? \times a? \times a?)$ 

- a<sup>12</sup>
- a³?
- a??
- a<sup>22</sup>

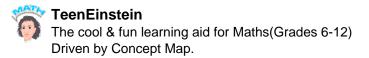
21) Add  $3x^2 + 6x - 4$  and  $9x^2 - 4 + 3x$ 

- 12x<sup>2</sup> + 9x 8
- 23x<sup>2</sup> + 12x 8
- 19x<sup>2</sup> + 17x 6
- 14x<sup>2</sup> + 12x 6

22) Add: 6a + 5c - 3b and -5c - 3a + 4b

- 6a + b
- 4a + b
- 2a +2b
- 3a + b

23) Add:  $5 + 4x + 7x^2$ ,  $4x + 2x^2 - 5$  and  $2x^2 + 6 - 5x$ 



- $21x^2 + 7x + 4$
- $11x^2 + 3x + 6$
- $31x^2 + 8x + 3$
- $17x^2 + 7x + 8$

24) Add: 4a - 5b + 10c - 5d, 7b + 6c + 3d + 4a and 9c + 3d - 8b + 2a

- 11a 2b + 22c + 2d
- 10a 6b + 25c + d
- 9a 8b + 22c + 4d
- 12a 5b + 12c + d

25) Subtract 3x + 7y from 9x + 8y

- x + 6y
- 6x + y
- 6x + 7y
- 5x + 6y

26) Subtract 3a + 4b from 9c - 5a + 7b

- -10a + 6b + 19c
- -12a + 31b + 12c
- -6a + 12b + 7c
- -8a + 3b + 9c

27) Subtract  $4x + 7 - 4x^2$  from  $12 - 3x + 5x^2$ 

- $7x^2 6x + 7$
- $9x^2 7x + 5$
- 12x<sup>2</sup> 8x +7
- $12x^2 6x + 7$

28) Subtract 5x - 8z + 4y from 8x - 2y - 6z

- 4x 7y + 3z
- 4x 8y + z
- 3x 6y + 2z
- 4x 5y + 3z

29) Multiply: x with (x + 1)

- X<sup>3</sup> + X
- x + 1
- X<sup>2</sup> X
- x<sup>2</sup> + x

30) Multiply : (-a) . ( b + 2c)

- ab + 2ac
- ab 2ac
- -ab 2ac
- -ab + 2ac