Math Drill

Time yourself from start to finish and record your time below. The SAT Non-Calculator section is all about speed and practice makes perfect!

YOUR TIME: _____

Multiplication Facts to 100 (E)

Name: _____ Date: _____ Score: ____ /100

Calculate each product.

3 × 3	6 × 10	2 × 3	4 × 10	9 × 9	8 × 8	10 × 3	6 × 8	8 × 2	7 × 10
6 × 2	7 × 4	9 × 7	5 × 5	10 × 8	4 × 5	10 × 7	2 × 8	4 × 3	3 × 6
3 × 7	5 × 3	4 × 7	8 × 7	8 × 10	10 × 4	4 × 2	2 × 4	7 × 9	7 × 6
6 × 3	2 × 7	10 × 2	5 × 2	8 × 5	9 × 3	5 × 10	10 × 10	3 × 8	3 × 2
6 × 6	3 × 10	7 × 3	3 × 4	8 × 6	9 × 8	9 × 4	2 × 2	9 × 5	7 × 7
8 × 9	2 × 9	6 × 9	7 × 2	5 × 6	6 × 7	6 × 5	4 × 4	9 × 2	10 × 9
5 × 4	3 × 9	7 × 5	8 × 3	5 × 7	5 × 9	3 × 5	5 × 8	7 × 8	2 × 6
9 × 10	4 × 6	4 × 9	8 × 4	10 × 5	4 × 8	2 × 10	6 × 4	2 × 5	10 × 6
9 × 6	2 × 6	9 × 8	9 × 9	6 × 4	7 × 6	9 × 10	3 × 10	10 × 2	3 × 8
8 × 6	6 × 10	3 × 2	5 × 9	7 × 2	6 × 2	5 × 2	5 × 4	7 × 5	6 × 6

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Unit 10 - Fundamentals of Algebra

Topic: Laws of Exponents and Scientific Notation

1

If $(-a^2b^3)(2ab^2)(-3b) = ka^mb^n$, what is the value of $m+n$?

2

If $(\frac{2}{3}a^2b)^2(\frac{4}{3}ab)^{-3} = ka^mb^n$, what is the value of k?

3

If $\frac{(x)^3(-y)^2z^{-2}}{(x)^{-2}y^3z} = \frac{x^m}{y^nz^p}$, what is the value of $m+n+p$?

4

If $2^x = 5$, what is the value of $2^x + 2^{2x} + 2^{3x}$?

5

$$(3^x + 3^x + 3^x) \cdot 3^x$$

Which of the following is equivalent to the expression shown above?

A) 3^{4x}

B) 3^{3x^2}

C) 3^{1+3x}

D) 3^{1+2x}

6

$$\frac{(6xy^2)(2xy)^2}{8x^2y^2}$$

If the expression above is written in the form ax^my^n, what is the value of $m+n$?

7

If x is not equal to zero, what is the value of $\frac{(2x)^3(3x)}{(6x^2)^2}$?

8

If $8,200 \times 300,000$ is equal to 2.46×10^n, what is the value of n?

9

If $\frac{240}{80,000} \times \frac{6,000}{900,000}$ is equal to $\frac{1}{5 \times 10^n}$, what is the value of n?

Topic: Adding, Subtracting, Multiplying, and Dividing Polynomials

1

$$a(2-a)+(a^2+3)-(2a+1)$$

Which of the following is equivalent to the expression shown above?

A) 2

B) $4a$

C) $2a+2$

D) $2a-2$

2

$$(-m^2n-n^2+3mn^2)-(m^2n-n^2+mn^2)$$

Which of the following is equivalent to the expression shown above?

A) $4mn^2$

B) $4m^2n$

C) $-2m^2n+2mn^2$

D) $2m^2n+2mn^2$

3

$$(2x^2-3x+1)-(-2x^2-3x+2)$$

If the expression above is written in the form ax^2+bx+c, in which a, b, and c are constants, what is the value of $a+b+c$?

A) 2

B) 3

C) 4

D) 5

4

$$(x^3-x^2+3x-3)\div(x-1)$$

Which of the following is the quotient of the expression shown above?

A) x^2-3

B) x^2+3

C) x^2-2x

D) x^2-2x+3

5

$$(14x^2+9x-20)\div(ax-1)=7x+8+\frac{-12}{ax-1}$$

In the equation above, a is a constant and $ax-1\neq 0$. What is the value of a?

6

If $\frac{6x^2-5x+4}{-3x+1}=-2x+1+\frac{A}{-3x+1}$, what is the value of A?

Topic: FOIL Method and Special Products

1

$$(x+3)(x-5)$$

Which of the following is equivalent to the expression shown above?

A) $(x+1)^2-14$

B) $(x-1)^2-12$

C) $(x-1)^2-16$

D) $(x-2)^2-12$

2

$$(2-5x)(5x+2)$$

Which of the following is equivalent to the expression shown above?

A) $25x^2-4$

B) $-25x^2+4$

C) $25x^2-10x+4$

D) $-25x^2+10x+4$

3

$$4x^2-12xy+9y^2$$

Which of the following is equivalent to the expression shown above?

A) $(2x^2-3y)^2$

B) $(2x^2-3y^2)^2$

C) $(2x-3y^2)^2$

D) $(2x-3y)^2$

4

$$(x+y)(x-y)(x^2+y^2)$$

Which of the following is equivalent to the expression shown above?

A) $x^4-2x^2y^2+y^4$

B) $x^4+2x^2y^2+y^4$

C) x^4+y^4

D) x^4-y^4

5

What is the value of $\frac{3^{(a-b)}\cdot 3^{(a+b)}}{3^{2a+1}}$?

A) $\frac{1}{3}$

B) $\frac{1}{9}$

C) 3

D) 9

6

What is the value of $\frac{2^{(a-1)(a+1)}}{2^{(a-2)(a+2)}}$?

A) $\frac{1}{16}$

B) $\frac{1}{8}$

C) 8

D) 16

Topic: Prime Factorization, GCF, and LCM

1

$$42x^2y^2 + 63xy^3$$

Which of the following is equivalent to the expression shown above?

A) $21x^2y^2(2x+3y)$

B) $21xy^2(2x+3y)$

C) $21x^2y(2x+3y)$

D) $21xy(2x+3y)$

2

$$12x^2y - 18xy^2z$$

Which of the following is equivalent to the expression shown above?

A) $6xy(2x-3yz)$

B) $6x^2y(2x-3yz)$

C) $6xy^2(2x-3yz)$

D) $6x^2y^2(2x-3yz)$

3

$$5a^2b - 10abc + 5bc^2$$

Which of the following is equivalent to the expression shown above?

A) $5b(a-b)^2$

B) $5c(a-b)^2$

C) $5a(b-c)^2$

D) $5b(a-c)^2$

4

If x and y are positive integers and $12^3 = 2^x \cdot 3^y$, what is the value of $x+y$?

5

If $2\times5^9 - k\times5^8 = 2\times5^8$, what is the value of k?

6

If $12^{99} - 12^{97} = 12^{97} \times n$, what is the value of n?

Topic: Factoring using the Distributive Property

1

$$1+2x-x(1+2x)$$

Which of the following is equivalent to the expression shown above?

A) $(1-2x)^2$

B) $(1+2x)(1-x)$

C) $-x(1+2x)$

D) $x(1-2x)$

2

What is the value of x, if $rx+sx=3$ and $r+s=\frac{1}{3}$?

A) 1

B) 3

C) 9

D) 27

3

$$2ax-6a-3x+9$$

Which of the following is equivalent to the expression shown above?

A) $(2a-1)(x-9)$

B) $(2a-3)(2x-3)$

C) $(a-3)(2x-3)$

D) $(2a-3)(x-3)$

4

$$mn-5n-m+5$$

Which of the following is equivalent to the expression shown above?

A) $(m-5)(n-1)$

B) $(m-1)(n-5)$

C) $(m+5)(n+1)$

D) $(m-5)(5n-1)$

5

$$7y^2-21xy-2y+6x$$

Which of the following is equivalent to the expression shown above?

A) $(7y-3)(y-2x)$

B) $(7y-2)(2y-3x)$

C) $(7y-2)(y-3x)$

D) $(7y+2)(2y-3x)$

6

$$x-2y+3z-2wx+4wy-6wz$$

Which of the following is equivalent to the expression shown above?

A) $(1+2w)(x+2y-3z)$

B) $(1-2w)(x-2y+3z)$

C) $(1+2w)(x-2y-3z)$

D) $(1-2w)(x-y-3z)$

Unit 10 Review Questions

1

$$\frac{2^{(a+b)^2}}{2^{(a-b)^2}}$$

Which of the following is equivalent to the expression shown above?

A) $8^{(a+b)}$

B) 8^{ab}

C) 16^{a+b}

D) 16^{ab}

2

$$2m^2n - mnp - 6m + 3p$$

Which of the following is equivalent to the expression shown above?

A) $(2m-n)(mp-3)$

B) $(2m-p)(mn-3)$

C) $(2m+p)(mn+3)$

D) $(2m-n)(mn-3p)$

3

$$(\frac{a+b}{2})^2 - (\frac{a-b}{2})^2 =$$

A) ab

B) $-ab$

C) $\frac{2ab+b^2}{2}$

D) $ab+b^2$

4

If $(x+\frac{1}{x})^2 = 9$, then $(x-\frac{1}{x})^2 =$

A) 3

B) 5

C) 7

D) 9

5

If $8^{\frac{4}{3}} \cdot 8^{-\frac{8}{3}} = \frac{1}{2^m}$, what is the value of m?

A) $-\frac{4}{3}$

B) -4

C) $\frac{4}{3}$

D) 4

6

If $xy \neq 0$, then $\frac{(-2xy^2)^3}{4x^4y^5} =$

A) $-\frac{xy}{2}$

B) $-\frac{2}{x}$

C) $-\frac{2y}{x^2}$

D) $-\frac{2y}{x}$

7

If $x^{12} = 32n^4$ and $x^9 = 4n$, then $x =$

A) $2n$

B) $2n^{\frac{1}{2}}$

C) $4n^{\frac{1}{2}}$

D) $4n$

8

$$(3x^3 - 2x^2 - 7) - (-2x^2 + 6x + 2)$$

Which of the following is equivalent to the expression shown above?

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

B) $3(x^3 - 2x - 9)$

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

D) $3(x^3 - 2x - 3)$

9

$$9x - (x - 3)(x + 12)$$

Which of the following is equivalent to the expression shown above?

A) $36 - 18x - x^2$

B) $36 + 12x - x^2$

C) $(6 - x)(6 + x)$

D) $(6 - x)^2$

10

If $\frac{(2.1\times10^{-3})(2\times10^{5})}{7\times10^{-4}} = 6\times10^{n}$, what is the value of n?

11

If $a^{\frac{3}{4}} = 8$, what is the value of $a^{-\frac{1}{2}}$?

12

$$\frac{x^2 - x - a}{x - 2} = x + 1 - \frac{8}{x - 2}$$

In the equation above, what is the value of a?