

GRE Math Refresher Diagnostic Test

Please take the time to complete the following diagnostic test.

If you have difficulty with any of the topics, you will be directed to one of several short refresher lessons available.

Integer Arithmetic

Evaluate the following (without a calculator)

a) $(-5) + (-8) =$

b) $(-2) - 10 =$

c) $5 \times (-2) \times 3 =$

d) $\frac{(10)(-2)(4)}{(-8)(1)} =$

e) $4 - (-4) =$

f) $(-5) + (-1) - (-7) =$

g) $(-10) - 8 + 2 =$

h) $\frac{(-6)(-1)(-8)}{(-2)(-12)} =$

i) $8 - 14 =$

j) $(-5) - 9 - (-10) =$

Answers:

a) -13

b) -12

c) -30

d) 10

e) 8

f) 1

g) -16

h) -2

i) -6

j) -4

If you had difficulty with any of these questions, you may want to print and complete the Math Refresher lesson "**Integer Arithmetic.**"

Decimal Arithmetic

Evaluate the following (without a calculator)

a) $5.278 + 0.0544 + 17.65 =$

b) $1.2074 + 11.809 =$

c) $6.0287 - 4.55 =$

d) $1.542 - 0.9438 =$

e) $8.5 \times 16.3 =$

f) $6.24 \times 48.8 =$

g) $57.78 \div 42.8 =$

h) $27.5 \div 3.125 =$

Answers:

a) 22.9824

b) 13.0164

c) 1.4787

d) 0.5982

e) 138.55

f) 304.512

g) 1.35

h) 8.8

If you had difficulty with any of these questions, you may want to print and complete the Math Refresher lesson "**Decimal Arithmetic.**"

Fractions

Evaluate the following and express your answer in simplest terms

a) $\frac{5}{8} - \frac{5}{12} =$

b) $\frac{1}{20} \div \frac{8}{15} =$

c) $\frac{1}{2} + \frac{1}{3} + \frac{1}{6} =$

d) $\frac{20}{27} \times \frac{9}{16} =$

e) $\frac{1}{6} + \frac{3}{10} =$

f) $2\frac{1}{3} - 1\frac{5}{6} =$

g) $\frac{27}{32} \div 1\frac{1}{8} =$

h) $\frac{8}{15} \times \frac{3}{4} =$

i) $\frac{7}{8} - \frac{5}{6} =$

j) $3\frac{3}{10} + 1\frac{3}{4} =$

Answers:

a) $\frac{5}{24}$

b) $\frac{3}{32}$

c) 1

d) $\frac{5}{12}$

e) $\frac{7}{15}$

f) $\frac{1}{2}$

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

h) $\frac{2}{5}$

i) $\frac{1}{24}$

j) $5\frac{1}{20}$

If you had difficulty with any of these questions, you may want to print and complete the Math Refresher lesson "**Fractions.**"

Powers

Evaluate the following:

a) $5^2 =$

b) $2^{-5} =$

c) $10^4 =$

d) $(-3)^{-3} =$

e) $4^3 =$

Simplify the following

f) $x \cdot x^2 \cdot x^{11} =$

g) $\frac{x^{18}}{x^6} =$

h) $\left[(x^2)^3\right]^4 =$

i) $\frac{(x^4)^5}{(x^2)^7} =$

j) $\frac{x^4 \cdot x^2 \cdot x^7}{(x^3)^3} =$

Answers:

a) **25**

b) $\frac{1}{32}$

c) **10,000**

d) $-\frac{1}{27}$

e) **64**

f) x^{14}

g) x^{12}

h) x^{24}

i) x^6

j) x^4

If you had difficulty with any of these questions, you may want to print and complete the Math Refresher lesson "**Powers.**"

Algebra

Simplify the following

a) $8x + 5x$

b) $4x - y + x - 5y$

c) $xy^2 - 8x^2y^2 - 4xy^2$

d) $x + x + 6y + 4 - 3y + 7x - 5y - 8x - 9$

Expand and simplify the following

e) $3x^2(4x^4 - 5x)$

f) $-4x^3y(3xy - x^7y^2)$

g) $7x^2y(yz - 4xy)$

h) $(x - 6)(x + 5)$

i) $(3x - 5)(x + 1)$

j) $(7x + 1)(7x - 1)$

Answers:

a) $13x$

b) $5x - 6y$

c) $-3xy^2 - 8x^2y^2$

d) $x - 2y - 5$

e) $12x^6 - 15x^3$

f) $-12x^4y^2 + 4x^{10}y^3$

g) $7x^2y^2z - 28x^3y^2$

h) $x^2 - x - 30$

i) $3x^2 - 2x - 5$

j) $49x^2 - 1$

If you had difficulty with any of these questions, you may want to print and complete the Math Refresher lesson "**Algebra.**"

Equation solving

Solve each equation for x

a) $2x + 5 = 17$

b) $-3x - 11 = 13$

c) $4x - 8 = 9x + 22$

d) $18 = 2(3 - x)$

e) $8 - 7x + 2 + 6x = x$

f) $4(x + 1) = 3x + 11$

g) $x + 2x + x = 24 - 2x$

h) $15 = 7x + 22$

Answers:

a) $x = 6$

b) $x = -8$

c) $x = -6$

d) $x = -6$

e) $x = 5$

f) $x = 7$

g) $x = 4$

h) $x = -1$

If you had difficulty with any of these questions, you may want to print and complete the Math Refresher lesson "**Equation Solving.**"