

**LEVEL 1****ALGEBRA READINESS TEST  
TYPICAL QUESTIONS FROM COMPETENCY AREAS****Integers**

Jim wrote a check for \$318.00. If his balance was then \$2126.00, what was his balance before he wrote this check?

- (A) \$808                      (B) \$1808                      (C) \$2444                      (D) \$5306

What number multiplied by 6 gives  $-18$  as a result?

- (A)  $-12$                       (B)  $-3$                       (C)  $3$                       (D)  $-54$

**Decimals**

$$\frac{7.20}{2.4} = \quad (A) 0.03 \quad (B) 0.30 \quad (C) 3.00 \quad (D) 30.0$$

Which of the following best approximates  $1.147 - 114.7$ ?

- (A)  $-100$                       (B)  $-10$                       (C)  $10$                       (D)  $100$

**Fractions**

The ratio of “winning” tickets to tickets sold in the California Lottery is 2 to 5. If 3,500,000 tickets are sold, how many are “winners”?

- (A) 700,000                      (B) 750,000                      (C) 1,400,000                      (D) 1,500,000

$$\frac{1 + \frac{1}{2}}{1 - \frac{3}{4}} = \quad (A) -6 \quad (B) -2 \quad (C) 2 \quad (D) 6$$

**Exponents**

If in the formula  $p = kt$ ,  $k = 36$  and  $p = 144$ , then  $t =$

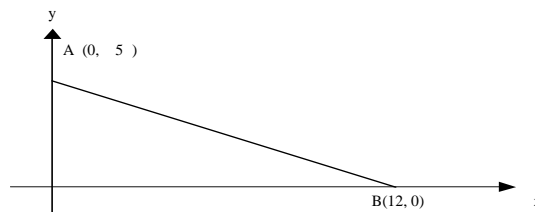
- (A)  $\frac{1}{4}$                       (B) 4                      (C) 12                      (D) 108

$$4(b+2) = \quad (A) 4b+2 \quad (B) b+6 \quad (C) b+8 \quad (D) 4b+8$$

**Geometry**

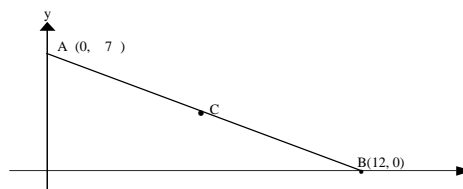
In the figure shown, what is the length of segment AB?

- (A)  $-5$                       (B) 5  
(C) 13                      (D) 19



If C is the midpoint of segment AB in the figure shown, then the coordinates of C are

- (A)  $(\frac{7}{2}, \frac{7}{2})$                       (B)  $(6, \frac{7}{2})$   
(C)  $(\frac{19}{2}, \frac{7}{2})$                       (D)  $(19, \frac{7}{2})$



What is the diameter of the circle whose area is  $36\pi$ ?

- (A) 12                      (B) 18                      (C)  $6\pi$                       (D)  $18\pi$

**Answers: 1. C 2. B 3. C 4. A 5. C 6. D 7. B 8. D 9. C 10. B 11. A**

**LEVEL 2****ELEMENTARY ALGEBRA TEST  
TYPICAL QUESTIONS FROM COMPETENCY AREAS****Arithmetic**

$$(0.12)^2 = \quad (A) 0.00144 \quad (B) 0.0144 \quad (C) 0.144 \quad (D) 0.24 \quad (E) 1.44$$

**Polynomials**

One of the factors of  $x^2 - x - 6$  is

- (A)  $x+3$       (B)  $x+2$       (C)  $x-1$       (D)  $x-2$       (E)  $x-6$

**Linear Equations and Inequalities**

If  $6x - 3 = 8x - 9$ , then  $x =$

- (A)  $-6$       (B)  $-3$       (C)  $3$       (D)  $-\frac{6}{7}$       (E)  $\frac{6}{7}$

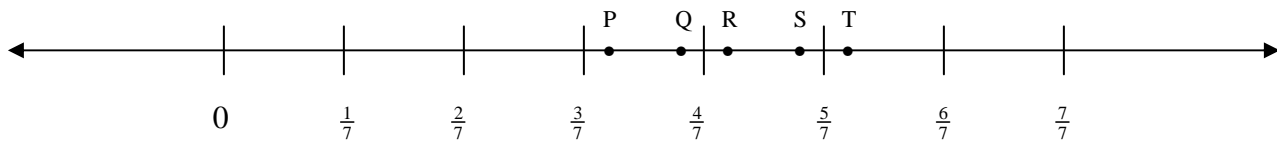
**Quadratic Equations**

What are the possible values of  $x$  such that  $3x^2 - 2x = 0$ ?

- (A)  $-\frac{2}{3}$  only      (B)  $0$  only      (C)  $\frac{2}{3}$  only      (D)  $0$  and  $\frac{2}{3}$       (E)  $-\frac{2}{3}$  and  $\frac{2}{3}$

**Graphing**

On the number line below, which letter best locates  $\frac{5}{9}$ ?



- (A) P      (B) Q      (C) R      (D) S      (E) T

**Rational Expressions**

$$\frac{2}{w+1} - \frac{1}{w-1} = \quad (A) \frac{1}{w+2} \quad (B) \frac{1}{w^2-1} \quad (C) \frac{w-3}{w^2-1} \quad (D) \frac{w+3}{w^2-1} \quad (E) \frac{3w-1}{w^2-1}$$

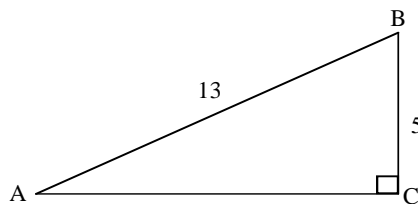
**Exponents and Square Root**

If  $x > 0$ , then  $\sqrt{64x^{16}} =$       (A)  $8x^4$       (B)  $8x^8$       (C)  $16x^4$       (D)  $32x^4$       (E)  $32x^8$

**Geometry and Measurement**

In the right triangle shown to the right, what is the length of AC?

- (A) 8      (B) 12  
(C) 18      (D)  $\sqrt{18}$   
(E)  $\sqrt{194}$

**Word Problems**

If  $x$  is to 5 as  $y$  is to 8, what is the value of  $x$  when  $y = 2$ ?

- (A)  $\frac{5}{16}$       (B)  $\frac{4}{5}$       (C)  $\frac{5}{4}$       (D)  $\frac{16}{5}$       (E) 5

**Answers: 1. B 2. B 3. C 4. D 5. B 6. C 7. B 8. B 9. C**

**LEVEL 3****INTERMEDIATE ALGEBRA TEST  
TYPICAL QUESTIONS FROM COMPETENCY AREAS**

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**Elementary Numeric and Algebraic Operations**

$$\frac{c}{d} + 2 =$$

- (A)  $\frac{c+2d}{d}$       (B)  $\frac{c+2}{d+2}$       (C)  $\frac{c+2}{d}$       (D)  $c+2d$       (E)  $c$

**Rational Expressions**

$$\frac{c-d}{\frac{1}{d}-\frac{1}{c}} =$$

- (A)  $\frac{c-d}{dc}$       (B)  $\frac{dc}{c-d}$       (C)  $dc$       (D)  $-dc$       (E)  $\frac{1}{dc}$

**Exponents and Radicals**

$$\sqrt{3} + \sqrt{27} =$$

- (A) 6      (B)  $3\sqrt{3}$       (C)  $4\sqrt{3}$       (D)  $10\sqrt{3}$       (E)  $\sqrt{30}$

**Linear Equations; Inequalities; Absolute Value**

If  $3x+2y=8$  and  $y=x-1$ , then  $x=$

- (A) -6      (B)  $\frac{6}{5}$       (C)  $\frac{7}{5}$       (D)  $\frac{9}{5}$       (E) 2

**Polynomials; Quadratic Equations**

One of the roots of  $(x-2)(3x+4)=0$  is

- (A) -2      (B)  $-\frac{4}{3}$       (C)  $-\frac{3}{4}$       (D)  $\frac{3}{4}$       (E)  $\frac{4}{3}$

**The Coordinate Plane and Graphing**

Which of the following is an equation of a line with slope 3 and y-intercept -4 ?

- (A)  $y = \frac{1}{3}x - 4$       (B)  $y = 3x - 4$       (C)  $y = 3x + 4$   
(D)  $y = 4x - 3$       (E)  $y = 4x + 3$

**Functions and Logarithms**

If  $\log_{10} x + \log_{10} y = 3$ , then  $xy =$

- (A) 0.001      (B) 1.0      (C) 10      (D) 100      (E) 1000

**Word Problems**

A student who correctly answered 72 questions on a test received a score of 75%. How many questions were on the test?

- (A) 54      (B) 72      (C) 75      (D) 96      (E) 104

**Answers: 1. A 2. C 3. C 4. E 5. B 6. B 7. E 8. D**

**Elementary Operations with Numerical and Algebraic Fractions**

$$\frac{3x-2}{x+2} - \frac{2}{x-2} =$$

- (A)  $\frac{3}{x+2}$       (B)  $\frac{3x-4}{x^2-4}$       (C)  $\frac{3x}{x^2-4}$       (D)  $\frac{x(3x-10)}{x^2-4}$       (E)  $\frac{3x(x-4)}{x^2-4x+4}$

**Operations with Exponents and Radicals**

$$\frac{x^{3a+2}}{x^{2a-1}} =$$

- (A)  $x^{a+3}$       (B)  $x^{a-3}$       (C)  $x^{5a-1}$       (D)  $x^{a+1}$       (E)  $x^3$

**Linear Equations and Inequalities**

For what value of  $t$  does  $\frac{2t-1}{3t+4} = 2$ ?

- (A)  $-6$       (B)  $-\frac{9}{4}$       (C)  $\frac{3}{2}$       (D)  $\frac{9}{4}$   
 (E) There is no value of  $t$  satisfying this equation

**Polynomials and Polynomial Equations**

If  $(x-1)(x^2-4) + 2(x-1)(x+2) = (x-1)P$ , then  $P =$

- (A)  $x^2-2$       (B)  $x^2$       (C)  $x(x+2)$       (D)  $x^2+2$       (E)  $(x+2)^2$

**Functions**

If  $f(x) = 2x+5$  and  $g(x) = 1-x^2$ , then  $f(g(2)) =$

- (A)  $-3$       (B)  $-1$       (C)  $1$       (D)  $2$       (E)  $9$

**Trigonometry**

If  $\sin \theta = \frac{3}{5}$  and  $0 \leq \theta \leq \frac{\pi}{2}$ , then  $\tan \theta =$

- (A)  $\frac{3}{2}$       (B)  $\frac{4}{3}$       (C)  $\frac{5}{4}$       (D)  $\frac{4}{5}$       (E)  $\frac{3}{4}$

**Logarithmic and Exponential Functions**

$\log_3 27 =$

- (A)  $81$       (B)  $9$       (C)  $3$       (D)  $\frac{1}{3}$       (E)  $\frac{1}{9}$

**Word Problems**

If  $\frac{2}{3}$  is  $\frac{1}{2}$  of  $\frac{4}{5}$  of a certain number, then that number is

- (A)  $\frac{15}{4}$       (B)  $\frac{5}{3}$       (C)  $\frac{5}{6}$       (D)  $\frac{5}{12}$       (E)  $\frac{4}{15}$