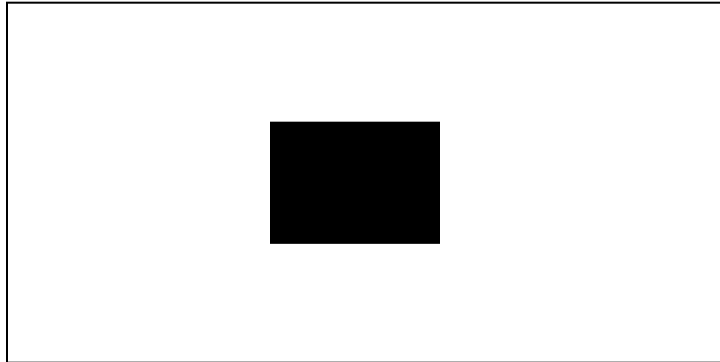


Practice Accuplacer Math Placement Test
NO CALCULATOR ALLOWED

On the actual placement test, all questions are multiple choice, with five choices per question

Elementary Algebra Section: This section has 12 questions and you will need to get at least 6 correct to take the second part of the test. If you get at least 6/12 on this section (EA Section) you will be able to take Math 93 or Math 105. If you get 5/12 you automatically qualify for Math 90. If you get less than 5/12, the student then takes the Pre-Algebra Section (PA Section).

1. If $x = -2$ and $y = -3$ what is the value $\frac{-x^2}{y-x}$?
2. The total area of the rectangular floor below is $\frac{5}{x}$. The area of the black tile square is $\frac{5}{x+1}$. What is the area of the white tile section? ($x \neq 0, -1$)



3. $(2x - 3)$ is a factor of which of the following?
 - a. $2x^2 + 5x - 12$
 - b. $2x^2 - 7x - 4$
4. What is the value of $\left| -3 + 1\frac{2}{3} \right|$?
5. If $-2x + 7y = 90$ and $5 \leq x \leq 11$, what is the least possible value for y ?
6. If the quotient $\frac{2m^2 + 8m}{m^2} \div \frac{16}{m^2 - 4m}$ is simplified to lowest terms, what is the denominator of the resulting expression?

7. $\left(x^{\frac{2}{5}}\right)^{10}$

8. $\frac{36xy^2 - 42x^2y}{6xy} =$

9. Find the equation that represents the volume of a right circular cone whose radius is t and whose height is 4 times its radius. (Volume = $\frac{1}{3}\pi r^2 h$, where r is the radius and h is the height).

10. $\frac{\frac{2}{x} - \frac{5}{y}}{\frac{7}{x^2} - \frac{2}{y^2}}$

11. The length of a rectangle is 4 times its width. If the diagonal of the rectangle is 17, what is the width of the rectangle?

12. Tara made $\frac{3m}{p}$ dollars working at McDonalds and Joe made $\frac{6m-4}{p}$ dollars. Lynn made $1\frac{1}{3}$ as much as Tara. If they pool all their money, how much money will they have?

College Level Math section of Accuplacer Placement Test: If a student gets at least 6/12 on the EA test, they then take this test (CLM). This section has 20 questions and a student needs to get at least 7 correct to take College Algebra (Math 102), Statistics (Math 221), or Pre-calculus (Math 119). Note that this test has many questions on rational expressions. Also, since this test is used for placement into Pre-Calculus there are also 4 Trig questions.

1. $(\sqrt{m} - 3\sqrt{p})(2\sqrt{m} + \sqrt{p})$

2. $\frac{-2}{6(x-1)} - \frac{4}{x-1}$

3. The fundamental period of the function $f(t) = \cot\left(\frac{3t}{2}\right)$

4. What is the equation of the line parallel to $3x - 4y = 10$ and goes through the point $(5, -2)$?

5. What is the equation of the line perpendicular to $3x - 4y = 10$ and goes through the point $(5, -2)$?

6. $f(x) = \tan(x)$ is positive in what quadrants?

7. If $x < 0$, then $|2x^5| - 3$ is equivalent to what expression that contains no absolute value signs?

8. In the xy plane, the point $(5, 2)$ is on a circle centered at the origin, what is the radius of the circle?

9. If $f(x) = 2x^2 - 1$ and $g(x) = (2x^2 + 3)$, what is $f(g(x))$?

10. Where defined, $\frac{1}{\sec(\theta)}$ is equal to what?

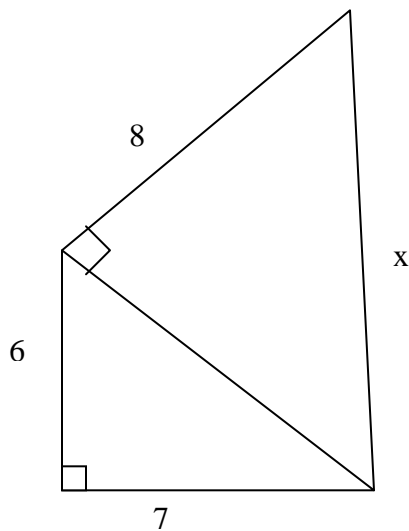
11. A line l goes through the points $(1, -2)$ and $(3, -4)$. If another line with a slope of -2 is drawn through the origin, it will intersect line l at the point (t, p) . What is the value of $t - p$?

12. If $f(x) = \frac{2}{5x^2}$ and $g(x) = 2x^2$, then what is $g(f(x))$?

13. What is the sum of the solutions to the equation $|2x - 5| = 6$?

14. Where defined, what does $\left(\frac{x^2 - 3x - 4}{x^2 - 9}\right)\left(\frac{x + 3}{2x^2 - 3x - 2}\right)$ equal?

15. In the figure below, what is the value of x ?



16. Graph the function $f(x) = 1 + \sec(x)$

17. For $x \neq 0$, $(3x)^{-1}(9x + (3x)^2) =$

18. In an xy plane, point P has coordinates (8,4) and point Q has coordinates (24,8). If point X is on segment PQ so that the length of segment PX is twice the length of segment XQ, what are the coordinates of point X?

19. If $n^3\left(\frac{-1}{3}\right)^{n-1}$ is the n th term of the sequence, then what is the fourth term of the sequence?

20. If $f(x) = 6^{(2x-1)}$, what is $f(2)$?

Pre-Algebra Section: If a student gets less than 5/12 on the EA section, they then take the Pre-Algebra section of the test. This section contains 17 questions. A student needs to get at least 13 correct to place into Math 90. Or if a student gets 5/12 on the EA section, they will place in Math 90.

1. Dave has a piece of material 20 inches long. He needs to cut it into pieces that are $2\frac{1}{2}$ inches long. How many pieces that are $2\frac{1}{2}$ inches long can Dave cut?
2. Mike makes 25,000 this year. If he gets a 5% raise, what will his salary be next year?
3. Tammy can walk 5 blocks in 32 minutes. At this rate how long will it take her to walk 35 blocks?
4. $\frac{5}{12} + \frac{3}{5} =$
5. If the average of 7 numbers is 12, what is their sum?
6. $\frac{5}{12}$ expressed as a percent is what?
7. What is 35% of 20?
8. A train leaves at 3:42 and arrives at its destination at 6:15. How many minutes did it take the train to reach its destination?
9. What is $\frac{5}{12}$ of 60?
10. $1,000 \times 1.34 =$
11. What is $84 \div .03$
12. $813 - 189 =$

13. $\frac{5}{12} - \frac{3}{15} =$

14. 5.4 is equal to what simplified fraction?

15. Tom won some money in the lottery. If he spent $\frac{1}{5}$ of it on a boat and $\frac{1}{3}$ of it on a car, what fraction of the lottery money does he have left?

16. What whole number is closest to $\sqrt{27.9}$?

17. A bed is $7\frac{1}{4}$ feet long. The material to make the sheet for the bed it to be $1\frac{1}{4}$ times as long as the bed. How long does the sheet need to be?

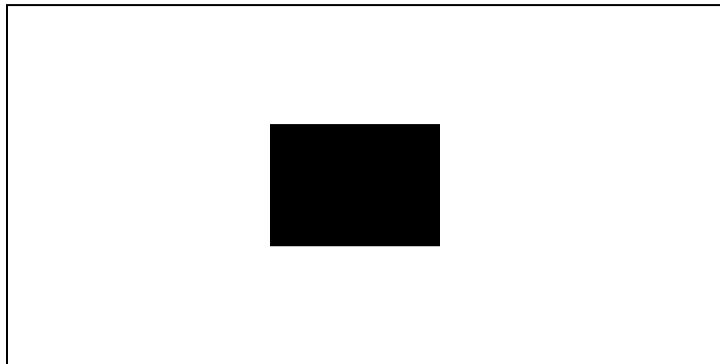
Answers to Practice Placement Test 1.

EA Test Solutions

1. If $x = -2$ and $y = -3$ what is the value $\frac{-x^2}{y-x}$

Solution $\frac{-(-2)^2}{(-3)-(-2)} = \frac{-4}{-3+2} = \frac{-4}{-1} = 4$

2. The total area of the rectangular floor below is $\frac{5}{x}$. The area of the black tile square is $\frac{5}{x+1}$. What is the area of the white tile section? ($x \neq 0, -1$)



Solution: $\frac{5}{x} - \frac{5}{x+1}$ Get a common denominator and this gives us $\frac{5(x+1) - 5x}{x(x+1)}$. This simplifies to $\frac{5x+5-5x}{x(x+1)}$ which equals $\frac{5}{x(x+1)}$.

3. $(2x - 3)$ is a factor of which of the following.
 a. $2x^2 + 5x - 12$
 b. $2x^2 - 7x - 4$

Solution: $2x^2 + 5x - 12$ factors into $(2x - 3)(x + 4)$
 $2x^2 - 7x - 4$ factors into $(2x + 1)(x - 4)$. So $(2x - 3)$ is only a factor of the first expression.

4. What is the value of $\left| -3 + 1\frac{2}{3} \right|$

Solution: $4/3$

5. If $-2x + 7y = 90$ and $5 \leq x \leq 11$, what is the least possible value for y .

Solution: Try $x = 5$ and $x = 11$. If $x = 5$ then $y = 100/7$. If $x = 11$, then $x = 112/7$. Therefore the least value of y is $100/7$

6. If the quotient $\frac{2m^2 + 8m}{m^2} \div \frac{16}{m^2 - 4m}$ is simplified to lowest terms, what is the denominator of the resulting expression.

Solution: Flip, factor, and simplify. Flip the second expression and we get,

$\frac{2m^2 + 8m}{m^2} \times \frac{m^2 - 4m}{16}$. Now factor and we get, $\frac{2m(m+4)}{m^2} \times \frac{m(m-4)}{16}$. Now simplify

and we get, $\frac{(m+4)(m-4)}{8}$. So the denominator is 8.

7. $\left(x^{\frac{2}{5}} \right)^{10}$

Solution: x^4

8. $\frac{36xy^2 - 42x^2y}{6xy} =$

Solution: Factor and we get, $\frac{6xy(6y - 7x)}{6xy}$ This gives us $(6y - 7x)$.

9. Find the equation that represents the volume of a right circular cone whose radius is t and whose height is 4 times its radius. (Volume = $\frac{1}{3}\pi r^2 h$, where r is the radius and h is the height).

Solution: $\frac{1}{3}\pi t^2(4t)$ This gives us $\frac{4}{3}\pi t^3$

10.
$$\frac{\frac{2}{7} - \frac{5}{2}}{\frac{x}{x^2} - \frac{y}{y^2}}$$

Solution: $\frac{2y-5x}{xy} \times \frac{x^2y^2}{7y^2-2x^2}$ Which simplifies to $\frac{xy(2y-5x)}{7y^2-2x^2}$

11. The length of a rectangle is 4 times its width. If the diagonal of the rectangle is 17, what is the width of the rectangle?

Solution: Use Pythagorean Theorem. $x^2 + 16x^2 = 17^2$. Simplify and we get, $17x^2 = 17$. So $x^2 = 1$, $x = 1$ and $x = -1$, but a width can not be negative, so the answer is 1.

12. Tara made $\frac{3m}{p}$ dollars working at McDonalds and Joe made $\frac{6m-4}{p}$ dollars. Lynn made $1\frac{1}{3}$ as much as Tara. If they pool all their money, how much money will they have?

Solution: $\frac{3m}{p} + \frac{6m-4}{p} + \frac{4m}{p}$ Now simplify and we get, $\frac{13m-4}{p}$

CLM Solutions

1. $(\sqrt{m} - 3\sqrt{p})(2\sqrt{m} + \sqrt{p})$

Solution: FOIL and we get $2m - 5\sqrt{mp} - 3p$

2. $\frac{-2}{6(x-1)} - \frac{4}{x-1}$

Solution: $\frac{-2-4(6)}{6(x-1)}$ Simplify and we get, $\frac{-26}{6(x-1)}$, which equals $\frac{-13}{3(x-1)}$

3. The fundamental period of the function $f(t) = \cot\left(\frac{3t}{2}\right)$

Solution: $\frac{2\pi}{3}$

4. What is the equation of the line parallel to $3x - 4y = 10$ and goes through the point $(5, -2)$.

Solution: The slope of the line $3x - 4y = 10$ is $\frac{3}{4}$. Now get the equation. $y + 2 = \frac{3}{4}(x - 5)$.

Simplify and we get $y = \frac{3}{4}x - \frac{23}{4}$

5. What is the equation of the line parallel to $3x - 4y = 10$ and goes through the point $(5, -2)$.

Solution: The slope of the line $3x - 4y = 10$ is $\frac{3}{4}$. Now get the equation. $y + 2 = \frac{3}{4}(x - 5)$.

Simplify and we get $y = \frac{-4}{3}x + \frac{14}{3}$

6. $f(x) = \tan(x)$ is positive in what quadrants?

Solution: Tan is positive in the 1st and 3rd quadrant.

7. If $x < 0$, then $|2x^5| - 3$ is equivalent to what expression that contains no absolute value signs.

Solution: $-2x^5 - 3$

8. In the xy plane, the point $(5, 2)$ is on a circle centered at the origin, what is the radius of the circle?

Solution: $5^2 + 2^2 = r^2$. So $r = \sqrt{29}$

9. If $f(x) = 2x^2 - 1$ and $g(x) = (2x^2 + 3)$, what is $f(g(x))$.

Solution: $f(g(x)) = 2(2x^2 + 3)^2 - 1$. Simplify and we get $4x^4 + 12x^2 + 8$

10. Where defined, $\frac{1}{\sec(\theta)}$ is equal to what? Solution: $\cos(\theta)$

11. A line l goes through the points (1,-2) and (3,-4). If another line with a slope of -2 is drawn through the origin, it will intersect line l at the point (t, p). What is the value of $t - p$?

Solution: First get the equation of the line that goes through (1,-2) and (3,-4). The slope is $\frac{-4+2}{3-1} = \frac{-2}{2} = -1$. Now get the equation using the point-slope formula and we get $y + 2 = -1(x - 1)$. Simplify and we get $y = -x - 1$ is the equation of line l . The other line has a slope of -2 and goes through the origin so its equation is $y = -2x$. Set the two equations equal to each other, and we get $-x - 1 = -2x$. Solve and we get $x = 1$ and $y = -2$. So the point (t, p) is (1,-2) so $t - p$ is 3.

12. If $f(x) = \frac{2}{5x^2}$ and $g(x) = 2x^2$, then what does $g(f(x))$

Solution: $g(f(x)) = 2\left(\frac{2}{5x^2}\right)^2$ which simplifies to $\frac{8}{25x^4}$

13. What is the sum of the solutions to the equation $|2x - 5| = 6$

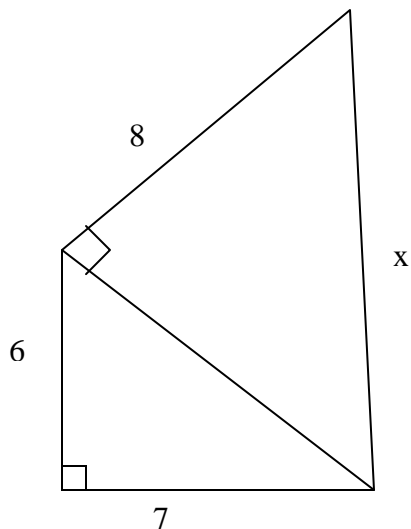
Solution: Solve $2x - 5 = 6$ and $2x - 5 = -6$. We get the solutions $x = 11/2$ and $x = -1/2$. Adding these we get 5.

14. Where defined, what does $\left(\frac{x^2 - 3x - 4}{x^2 - 9}\right)\left(\frac{x + 3}{2x^2 - 3x - 2}\right) =$

Solution: Factor and simplify. $\left(\frac{(x-4)(x+1)}{(x-3)(x+3)}\right)\left(\frac{(x+3)}{(2x+1)(x-2)}\right)$. This simplifies to

$$\frac{(x-4)(x+1)}{(x-3)(2x+1)(x-2)}$$

15. In the figure below, what is the value of x ?



Solution: $49 + 36 = y^2$, where y is the long side of the bottom triangle. We get $y = \sqrt{85}$.
 Now $85 + 64 = x^2$. So $x = 12$.

16. Graph the function $f(x) = 1 + \sec(x)$

17. For $x \neq 0$, $(3x)^{-1}(9x + (3x)^2) =$

Solution: $\frac{9x + 9x^2}{3x}$ which simplifies to $\frac{9x(1+x)}{3x}$ which simplifies to $3+3x$.

18. In an xy plane, point P has coordinates (8,4) and point Q has coordinates (24,8). If point X is on segment PQ so that the length of segment PX is twice the length of segment XQ, what are the coordinates of point X?

19. If $n^3 \left(\frac{-1}{3}\right)^{n-1}$ is the n th term of the sequence, then what is the fourth term of the sequence?

Solution: Substitute 5 in for n and we get $5^3 \left(\frac{-1}{3}\right)^4$ which equals $\frac{125}{81}$

20. If $f(x) = 6^{(2x-1)}$, what is $f(2)$?

Solution: Substitute 2 in for x and we get 6^3 which equals 216.

PA Section Solutions

1. Dave has a piece of material 20 inches long. He needs to cut it into pieces that are $2\frac{1}{2}$ inches long. How many pieces that are $2\frac{1}{2}$ inches long can Dave cut?

Solution: 8

2. Mike makes 25,000 this year. If he gets a 5% raise, what will his salary be next year?

Solution: $25,000 + .05(25,000) = 26,250$

3. Tammy can walk 5 blocks in 32 minutes. At this rate how long will it take her to walk 35 blocks?

Solution: $7(32) = 224$

4. $\frac{5}{12} + \frac{3}{5} =$ Solution: $61/60$

5. If the average of 7 numbers is 12, what is their sum? Solution: $7(12) = 84$

6. $\frac{5}{12}$ expressed as a percent is what? Solution: 41.67%

7. What is 35% of 20? Solution: 7

8. A train leaves at 3:42 and arrives at its destination at 6:15. How many minutes did it take the train to reach its destination? Solution: 153 minutes

9. What is $\frac{5}{12}$ of 60? Solution: 25

10. $1,000 \times 1.34 =$ Solution: 1340

11. What is $84 \div .03$ Solution: 2800

12. $813 - 189 =$ Solution: 624

13. $\frac{5}{12} - \frac{3}{15} =$ Solution: $13/60$

14. 5.4 is equal to what simplified fraction? Solution: $5\frac{2}{5}$

15. Tom won some money in the lottery. If he spent $\frac{1}{5}$ of it on a boat and $\frac{1}{3}$ of it on a car, what fraction of the lottery money does he have left?

Solution: $\frac{7}{15}$

16. What whole number is closest to $\sqrt{27.9}$? Solution: 5

17. A bed is $7\frac{1}{4}$ feet long. The material to make the sheet for the bed it to be $1\frac{1}{4}$ times as long as the bed. How long does the sheet need to be?

Solution: $9\frac{1}{16}$