NORTH CAROLINA EARLY MATH PLACEMENT TESTING PROGRAM
4,146 high school student participants

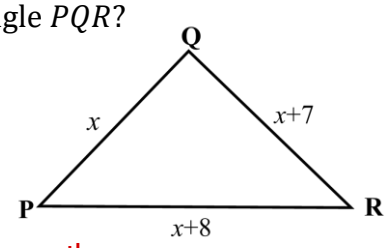
TOP MISSED NC EMPT QUESTIONS

NC Math 1 Edition

These questions are typical of those found on college math placement exams throughout the UNC System, NC community colleges, and other private colleges and universities. The questions are formatted for use as a quick review or warm-up exercise for high school students, but these particular questions were selected to be used for middle school review and enrichment.

2019-2020 NC EMPT Test Version (Tan)

1. Given right triangle PQR with right angle Q, what is the area of triangle PQR?



A. $3x + 15$ B. $x^2 + (x+7)^2 = (x+8)^2$

C. $\frac{1}{2}x(x+8)$ D. $\frac{1}{2}x(x+7)(x+8)$ E. $\frac{1}{2}x(x+7)$

Question 10 in 2019-20 test booklet – 78% answered incorrectly

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2. Solve for x: $49x^4 = 25x^2$ *Great Enrichment after learning factoring by GCF and difference of squares!*

A. $\pm\frac{25}{49}$ B. $\pm\frac{7}{5}, 0$ C. $\pm\frac{49}{25}$ D. $\pm\frac{5}{7}, 0$ E. $\pm\frac{5}{7}$

Question 24 in 2019-20 test booklet – 67% answered incorrectly

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3. Which quadratic function below has a graph with a vertex at $(-3, 2)$?

A. $f(x) = x^2 + 6x + 11$ B. $f(x) = x^2 - 6x + 11$ C. $f(x) = -x^2 - 6x - 8$

D. $f(x) = -x^2 + 6x - 8$ E. $f(x) = x^2 + 6x + 6$

Question 29 in 2019-20 test booklet – 65% answered incorrectly

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4. Given this system of two equations: $\begin{cases} x + 2y = 5 \\ 4x - 6y = 9 \end{cases}$ Find x.

A. 0 B. $\frac{11}{14}$ C. 2 D. $\frac{24}{7}$ E. 5

Question 32 in 2019-20 test booklet – 64% answered incorrectly

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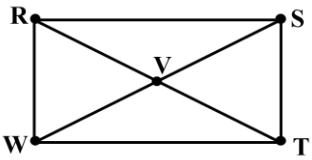
5. In rectangle $RSTW$, $RT = 3x + 15$ and $SW = 4x - 5$. $\overline{RT}$ and $\overline{SW}$ intersect at point V. Find the length of $\overline{WV}$.



A. 10 B. 20 C. 37.5

D. 45 E. 75

Question 20 in 2019-20 test booklet – 62% answered incorrectly

6. Given $f(x) = 2x^2 + x + 3$ and $g(x) = 4x^3 - 5x^2 - 7$, find $(f - g)(x)$.

Math 1 students should be able to find the difference of two expressions, but they may need help understand that the notation (f-g)(x) is simply f(x) – g(x).

A. $-4x^3 + 7x^2 + x - 4$ B. $-4x^3 + 7x^2 + 10$

C. $-4x^3 - 3x^2 + x - 4$ D. $4x^3 - 7x^2 - x - 10$

E. $-4x^3 + 7x^2 + x + 10$

Question 16 in 2019-20 test booklet - 61% answered incorrectly

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7. The graph of which of the following equations is a line that is parallel to the graph of $x - 5y = 8$?

A. $x + 5y = 8$ B. $5x - y = 8$ C. $2x + 10y = 8$

D. $2x - 10y = 8$ E. $10x - 2y = 8$

Question 15 in 2019-20 test booklet - 60% answered incorrectly

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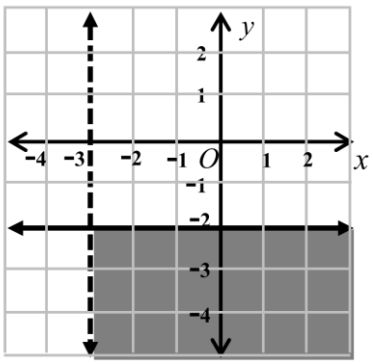
8. Choose the system of inequalities whose solution is represented by the graph given at the right.



A. $\begin{cases} x < -3 \\ y < -2 \end{cases}$ B. $\begin{cases} x > -3 \\ y \leq -2 \end{cases}$ C. $\begin{cases} x \leq -2 \\ y > -3 \end{cases}$

D. $\begin{cases} x < -2 \\ y \geq -3 \end{cases}$ E. $\begin{cases} x \geq -3 \\ y < -2 \end{cases}$

Question 19 in 2019-20 test booklet - 52% answered incorrectly

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9. If $f(x) = x^2 - kx - 3$ and $f(2) = 9$, find k.

A. -5 B. -4 C. 2 D. 4 E. 9

Question 11 in 2019-20 test booklet - 45% answered incorrectly

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10. Simplify: $(7ab^5)(-3a^3b^{-4})$

A. $-21a^4b$ B. $\frac{-21a^3}{b^{20}}$ C. $4a^4b$ D. $\frac{1}{21a^4b}$ E. $-21a^3b$

Question 21 in 2019-20 test booklet - 39% answered incorrectly

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ANSWER KEY 1. E 2. D 3. A 4. B 5. C 6. D 7. B 8. B 9. A 10. A