

Name: _____

Circle your answer for problems 1-3. You must show correct work to receive credit.

(8 pts) 1. Find the least common multiple (LCM) of 180 and 408 using prime factorizations (you must show the prime factorizations of both for credit).

- A. 1,020
- B. 73,440
- C. 3,060
- D. 12,240
- E. None of the above

(8 pts) 2. Simplify. Express your answer as a fraction in lowest terms. **(Do not use a calculator.)**

$$\frac{\frac{2}{3} - \frac{3}{5}}{\frac{2}{3} + \frac{5}{6}}$$

- A. $\frac{2}{45}$
- B. $\frac{12}{55}$
- C. $-\frac{9}{14}$
- D. $-\frac{18}{25}$
- E. None of the above

(8 pts) 3. Simplify completely.

$$(3x - 2)^2 - 4(x + 3)$$

Name: _____

A. $x^2 - 4x - 16$

B. $x^2 - 16x + 16$

C. $x^2 - 4x - 8$

D. $x^2 - 16x - 8$

E. None of the above

Place your answer in the spaces provided. You must show your work to receive credit.

(8 pts) 4. If forty-five percent of a number is subtracted from the number and the result is 22.88, find the number. (Name the variable, **set up an equation**, and solve.)

(8 pts) 5. Calculate. Express your answer in scientific notation.

$$\frac{6.3 \times 10^{13}}{(1.4 \times 10^{-15})(3.0 \times 10^4)}$$

Name: _____

(10 pts) 6. Write $|2x + 5| > 6$ without the absolute value symbol and solve for x .Place your answer in the spaces provided. You must show your work to receive credit.

(16 pts) 7. Simplify. Do not leave negative exponents in your answer.

(8 pts) (a) $\frac{-2x^0y^5}{x^3}$

(8 pts) (b) $\frac{(ab)^{-3}}{ab^{-3}} \frac{a^2b^7}{a^3b^2}$

Name: _____

(16 pts) 8. Factor each of the following completely.

(6 pts) (a) $8x^3 - 10x^2 - 3x$

(10 pts) (b) $4x^3 + 20x^2 - 9xy^2 - 45y^2$

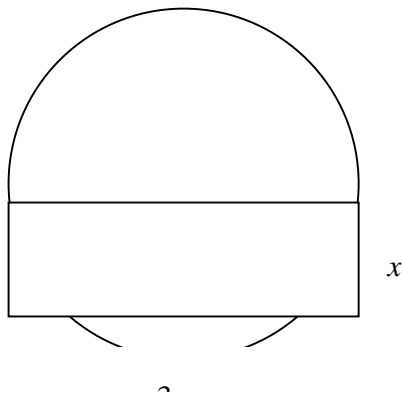
Place your answer in the spaces provided. You must show your work to receive credit.

(8 pts) 9. Paul and Ryan divided a package of candy among themselves. Paul took $\frac{2}{7}$ of the pieces while Ryan took the remaining 45. Find the total number of pieces originally in the bag. (Name the variable, **set up an equation**, and solve.)

Name: _____



- (10 pts) 10. Express the total area of the figure below, which is a rectangle with length $3x$ and width x topped by a semicircle, in algebraic notation using the variable x . Simplify your answer.



Total area =

