

## Final Review 1

- ① Which of the following represents the system of equations? (Graph them)

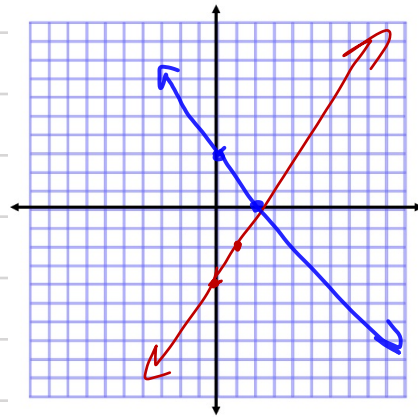
$$2y = 4x - 8 \rightarrow y = 2x - 4$$

$$3x + 2y = 6$$

$$-3x \quad -3x$$

$$\frac{2y}{2} = \frac{-3x+6}{2}$$

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



- ② Evaluate  $i^{51}$

$$i^1(i^{50}) = i^1(i^2)^{25} = i^1(-1)^{25} = i^1(-1) = \boxed{-i}$$

- ③ Evaluate  $i^{41} = i^1(i^{40}) = i^1(i^2)^{20} = i^1(-1)^{20} = i^1(1) = \boxed{i}$

- ④ Evaluate  $i^{20} = (i^2)^{10} = (-1)^{10} = \boxed{1}$

- ⑤  $(8+6i) - (1+7i)$

$$\begin{array}{r} 8+6i \\ - (1+7i) \\ \hline 7-i \end{array}$$

- ⑥ Solve  $|4x+6| \geq 30$

$$\begin{array}{l} 4x+6 \geq 30 \quad \text{OR} \quad 4x+6 \leq -30 \\ \quad -6 \quad -6 \qquad \quad -6 \quad -6 \\ \hline 4x \geq 24 \qquad \quad 4x \leq -36 \\ \quad \frac{4}{4} \quad \frac{4}{4} \qquad \quad \frac{4}{4} \quad \frac{4}{4} \\ \hline x \geq 6 \quad \text{OR} \quad x \leq -9 \end{array}$$

- ⑦ What is the simplified form of  $\frac{p^{-5}q^8r}{p^3q^{-3}}$  =  $p^{-5-3}q^{8-(-3)}r = p^{-8}q^{11}r = \frac{q^{11}r}{p^8}$

- ⑧ Factor  $27p^3 - 8q^3$

$$\begin{array}{c} (3p)^3 - (2q)^3 \\ \uparrow \quad \quad \uparrow \\ a \quad \quad b \end{array} = \boxed{(3p-2q)(9p^2+6pq+4q^2)}$$

$$a^2 - b^2 = (a+b)(a-b)$$

$$a^3 - b^3 = (a-b)(a^2+ab+b^2)$$

$$a^3 + b^3 = (a+b)(a^2-ab+b^2)$$