

① LINE THROUGH POINTS $(-2, 4)$, $(3, 6)$, FIND SLOPE.

HINT: MUST KNOW & BE ABLE
to WRITE & USE FORMULA
for slope, $m = ?$

② NAME THE 3 FORMS OF A LINEAR EQUATION, IDENTIFY
THE IMPORTANT PARTS OF THE EQUATIONS (SLOPE, Y-INTERCEPT,
POINTS) AND KNOW WHEN EACH IS USED.

③ LINES PARALLEL TO $y = -\frac{1}{3}x + 2$ HAVE SLOPES OF _____?

④ LINES PERPENDICULAR TO $y = 4x + 3$ HAVE SLOPES OF _____?

⑤ FIND THE EOL FOR A LINE THROUGH $(-4, 2)$, $m = 3$.

HINT: TWO WAYS TO DO THIS. EASIEST WAY IS TO USE THE
POINT-SLOPE FORM SINCE YOU KNOW A POINT AND
THE SLOPE. ANOTHER WAY IS TO SOLVE A "3 of 4" PROBLEM
USING $y = mx + b$ AND SOLVE FOR b - THEN USE m AND b
TO WRITE THE EOL IN $y = mx + b$ FORM.

⑥ FIND THE EOL FOR A LINE THROUGH $(6, -3)$, $(2, 1)$.

HINT: FIND m JUST LIKE PROBLEM 1 ABOVE, THEN FIND THE EOL
JUST LIKE PROBLEM 5 ABOVE USING EITHER POINT PLUS m .

⑦ SOLVE BY GRAPHING $\begin{cases} y = -x + 8 \\ y = 4x - 7 \end{cases}$

HINT. THE SOLUTION IS THE COORDINATES OF WHERE THE LINES CROSS.

⑧ SOLVE BY THE METHOD OF SUBSTITUTION $\begin{cases} x + 5y = -3 \\ 3x - 2y = 8 \end{cases}$

HINT: 3 STEPS: 1. SOLVE EITHER EQUATION
FOR x OR y

2. SUBSTITUTE RESULT INTO OTHER EQUATION AND
SOLVE FOR x OR y TO GET x OR $y =$ A NUMBER

3. SUBSTITUTE NUMBER FOR x OR y INTO EITHER EQUATION TO
GET REMAINING x OR y AS A NUMBER.

PRACTICE EXAM ~ 11 ~ 9 ~ 04

KEY

① $(-2, 4), (3, 6)$
 $x_1, y_1 \quad x_2, y_2$
 $m = \frac{y_2 - y_1}{x_2 - x_1} \quad m = \frac{6 - 4}{3 - (-2)} = \frac{2}{5} = m$

② $Ax + By = C$ STANDARD FORM OF A LE Used for SOLVING SYSTEMS OF LE'S algebraically

$y = mx + b$ Slope-Intercept Form OF A LE $m = \text{SLOPE}$ $b = \text{Y-intercept}$ Used for graphing or ANYWHERE YOU NEED THE EQUATION IN "FUNCTION" form.

$y - y_1 = m(x - x_1)$ POINT-SLOPE Form OF A LE $(x_1, y_1) = \text{KNOWN POINT}$ $m = \text{SLOPE}$ Useful if you know A POINT AND the slope OF A LINE

③ $m_{//} = -\frac{1}{3}$ since parallel lines have same slopes.

④ $m_{\perp} = -\frac{1}{4}$ since perpendicular lines have negative reciprocal slopes.

⑤ EOL through $(-4, 2)$, $m = 3$
 x, y

POINT-SLOPE
 $y - 2 = 3(x - (-4))$
 $y - 2 = 3(x + 4)$ ← ANS

ALTERNATE "3 of 4" way
 $y = mx + b$ so $2 = 3 \cdot (-4) + b$
 $2 = -12 + b$
 $14 = b$
 $\therefore y = 3x + 14$ ← ANS

NOTE: EITHER EOL IS CORRECT, THEY ARE THE SAME LINE. YOU CAN PROVE THIS BY SOLVING THE POINT-SLOPE form for y.

⑥ EOL through $(6, -3), (2, 1)$

$m = \frac{1 - (-3)}{2 - 6} = \frac{4}{-4} = -1 = m$ so $y - 1 = -1(x - 2)$ USING m AND $(2, 1)$
 POINT-SLOPE METHOD

⑦ SEE EXAMPLE 2a ON PAGE 370 OF TEXT. *STUDY*

⑧ see EXAMPLE 2 ON PAGE 377 OF TEXT *STUDY*