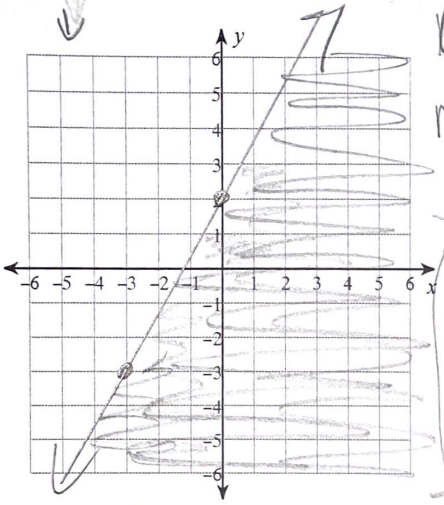
Sketch the graph of each linear inequality. Is (2,3) a solution? Why or why not?

13) $y \leq \frac{5}{3}x + 2$

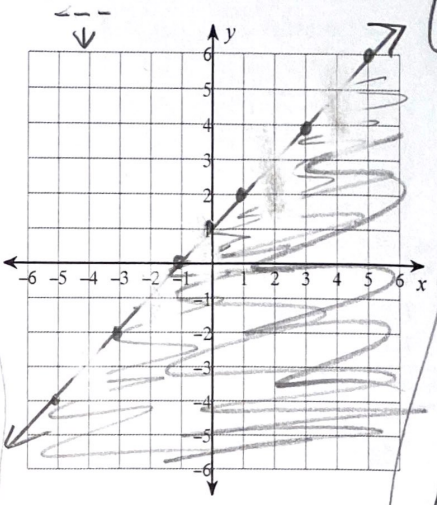


(0, 2)

$m = +\frac{5}{3}$ ← rise / run

Yes.
$3 \leq \frac{5}{3}(2) + 2$
$3 \leq 5\frac{1}{3}$.
or, it is in the shaded region.

14) $y < x + 1$



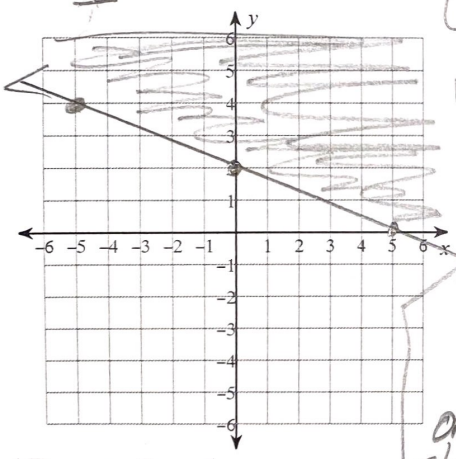
(0, 1)

$m = +1 = \frac{1}{1}$

No.
$3 < 2 + 1$
$3 < 3$.
or, it is on the line, but the line is dashed.

(0, -1)

15) $y \geq -\frac{2}{5}x + 2$

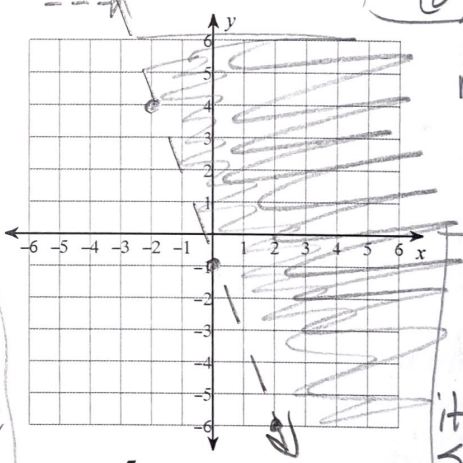


(0, 2)

$m = -\frac{2}{5}$

Yes.
$3 \geq -\frac{2}{5}(2) + 2$
$3 \geq 1.2$
or, it is in the shaded region.

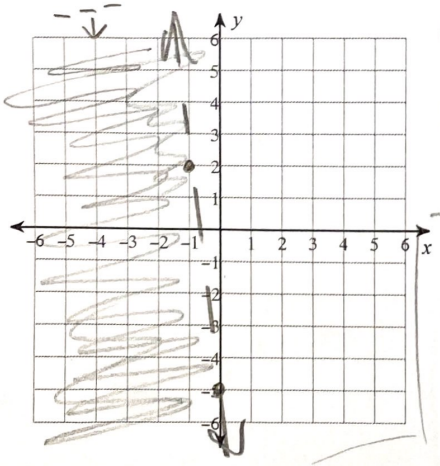
16) $y > -\frac{5}{2}x - 1$



$m = -\frac{5}{2}$

Yes.
$3 > -\frac{5}{2}(2) - 1$
$3 > -6$. or, it is in the shaded region.

17) $y < -7x - 5$

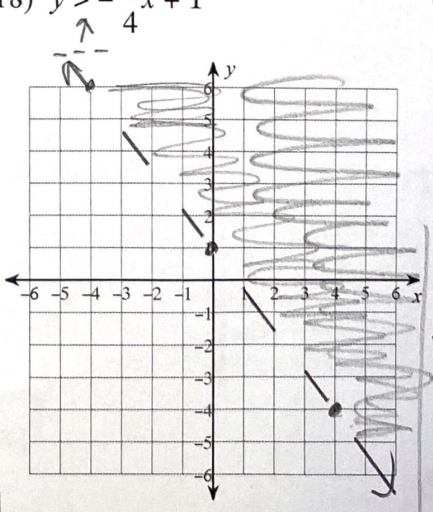


(0, -5)

$m = -7 = -\frac{7}{1}$

No!
$3 < -7(2) - 5$
$3 < -19$
or, it is not in the shaded region.

18) $y > -\frac{5}{4}x + 1$

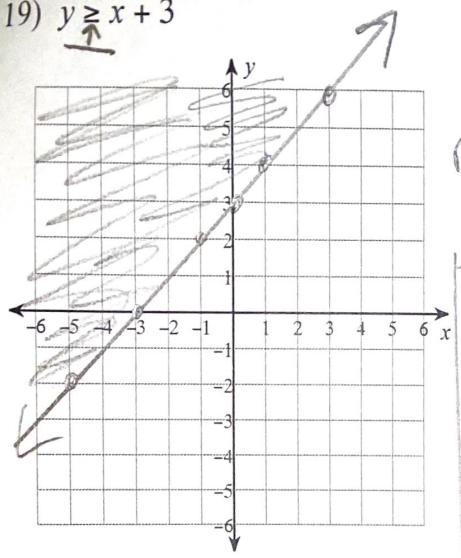


(0, 1)

$m = -\frac{5}{4}$

Yes.
$3 > -\frac{5}{4}(2) + 1$
$3 > -1.5$
or, it is in the shaded region.

19) $y \geq x + 3$

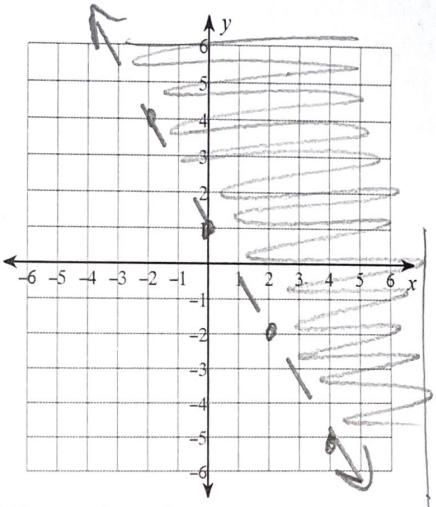


(0,3)

$m = +1 = \frac{1 \text{ rise}}{1 \text{ run}}$

No.
$3 \not\geq 2+3$
$3 \not\geq 5$
or, it is not in the shaded region.

20) $y > -\frac{3}{2}x + 1$

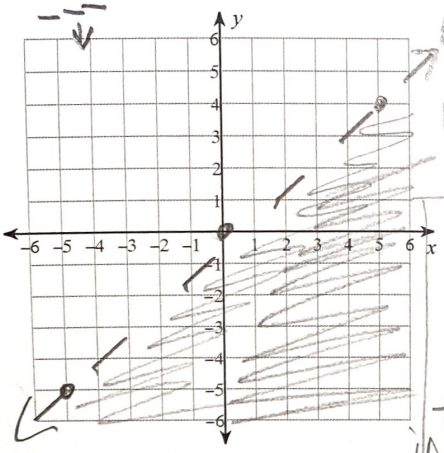


(0,1)

$m = -\frac{3 \text{ rise}}{2 \text{ run}}$

Yes.
$3 > -\frac{3}{2}(2) + 1$
$3 > -2$
or, it is in the shaded region.

21) $y < \frac{4}{5}x$

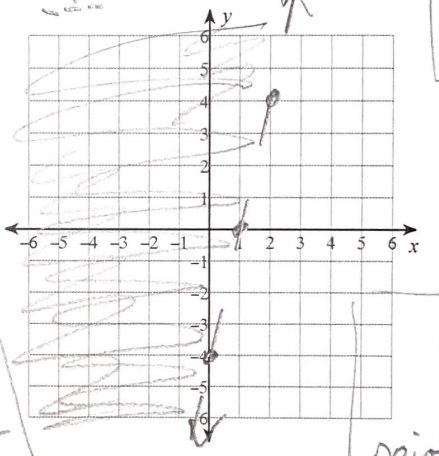


(0,0)

$m = +\frac{4 \text{ rise}}{5 \text{ run}}$

No.
$3 \not< \frac{4}{5}(2)$
$3 \not< 1.6$, or the point is not in the shaded region.

22) $y > 4x - 4$

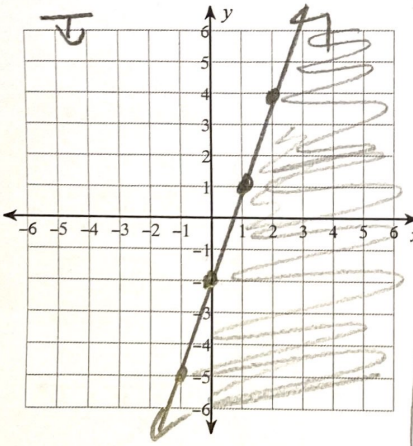


(0,-4)

$m = +4 = \frac{4 \text{ rise}}{1 \text{ run}}$

No.
$3 \not> 4(2) - 4$
$3 \not> 4$ or the point is not in the shaded region.

23) $y \leq 3x - 2$

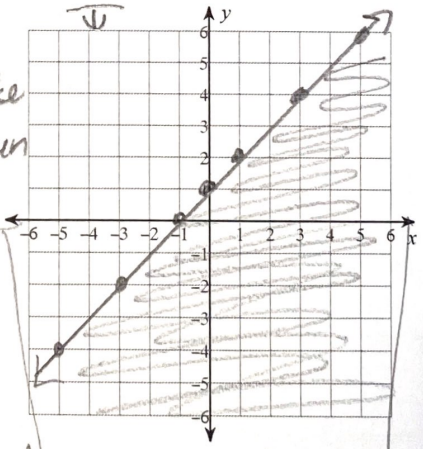


(0,-2)

$m = +3 = \frac{3 \text{ rise}}{1 \text{ run}}$

Yes.
$3 \leq 3(2) - 2$
$3 \leq 4$ or the point is in the shaded region.

24) $y \leq x + 1$



(0,1)

$m = +1 = \frac{1}{1}$

Yes,
$3 \leq 2 + 1$
$3 \leq 3$ or the point is on the line, and the line is solid.