MAT 155  Assignment (85.1, 1.2)
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P16 2. graph (d) [Domain of \( y = \sqrt[5]{x^2} \)]
is \(-3 \leq x \leq 3\) and range is \(0 \leq y \leq 3\).
Only graph (d) matches these conditions.

P18 18. intercepts of \( y = 4x^2 + 3 \)
y-intercept: \( 4(0)^2 + 3 = 3 \) \([y = 3]\)
x-intercept: there are none, because
\( x^2 \geq 0 \) for all x, which means that
\( 4x^2 + 3 \geq 3 \) for all x.

P59 59. Find points of intersection
of \( \begin{cases} x^2 + y = 6 \quad (i) \\ x+y = 4 \quad (ii) \end{cases} \)
Solution: from (i), \( y = 6 - x^2 \)
Putting \( 4 - x \) in for \( y \) in (i) gives
\( x^2 + 4 - x = 6 \Rightarrow x^2 - x - 2 = 0 \)
\( = (x-2)(x+1) = 0 \)
\( \Rightarrow x = 2 \) or \( x = -1 \).
If \( x = 2 \), then \( y = 4 - 2 = 2 \), so one point is \((2,2)\).
If \( x = -1 \), then \( y = 4 - (-1) = 5 \), so another point is \((-1,5)\).
There are no other possibilities\( [2,2] \) and \((-1,5)\)

P16 7. The points \((2,4)\) and \((4,1)\)
determine the vertical line \( x = 4 \).
The line does not have a slope.

P16 ② punto \((2,4)\)
Slope \(-\frac{3}{5}\)
Use point-slope form. It is easier than slope-intercept form, and usually it’s the better form for us.
\[ y - 4 = -\frac{3}{5}(x - 2) \]
\[ y - 4 = -\frac{3}{5}(x + 2) \]

P59 69. General equation of line through given point [perpendicular]
to the given line
Given line is \( 4x - 2y = 3 \)
Solving for y gives \( y = 2x - \frac{3}{2} \).
So given line has slope \( m = 2 \)
Through \((2,1)\) and parallel \((\text{Slope} = 2)\):
Through \((2,1)\) and perpendicular \((\text{Slope} = -\frac{1}{2})\)
\[ y-1 = 2(x-2) \]
\[ y-1 = -\frac{1}{2}(x-2) \]