Non-linear Graphs Practice #2

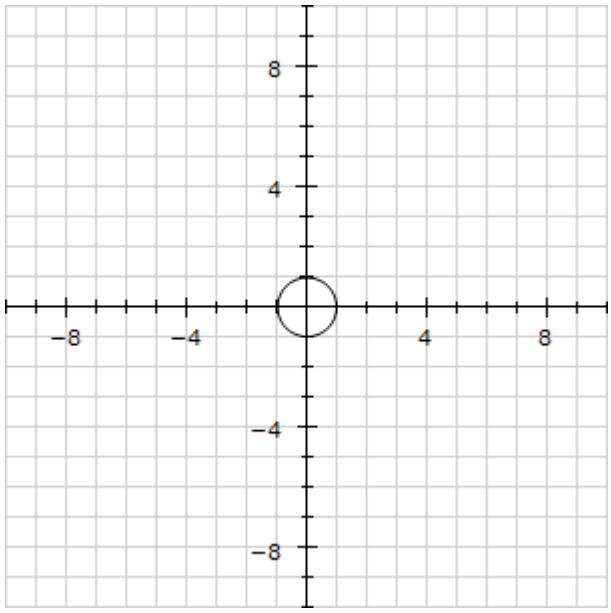
1. Sketch: $y = \log(x - 2)$

2. Sketch: $y = 3x^2 - x^3 + x - 3$

3. Sketch: $y = \frac{5}{x} + 1$ for $x < 0$

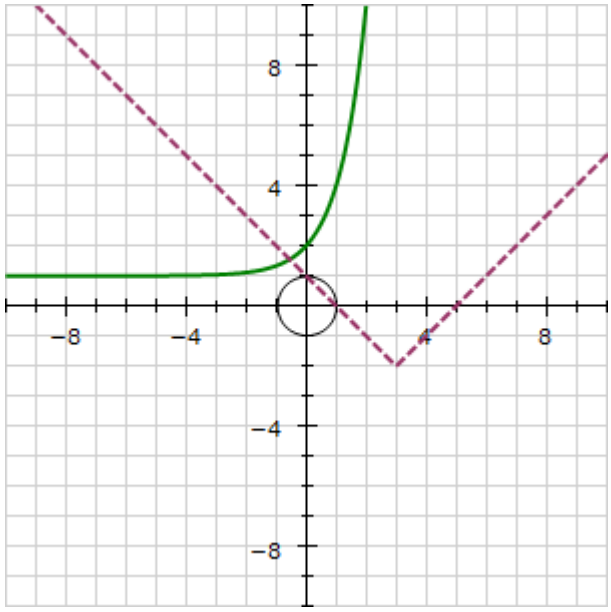
4. Rewrite the function $y = \frac{5}{x} + 1$

   so that every point on it is shifted right by 4.



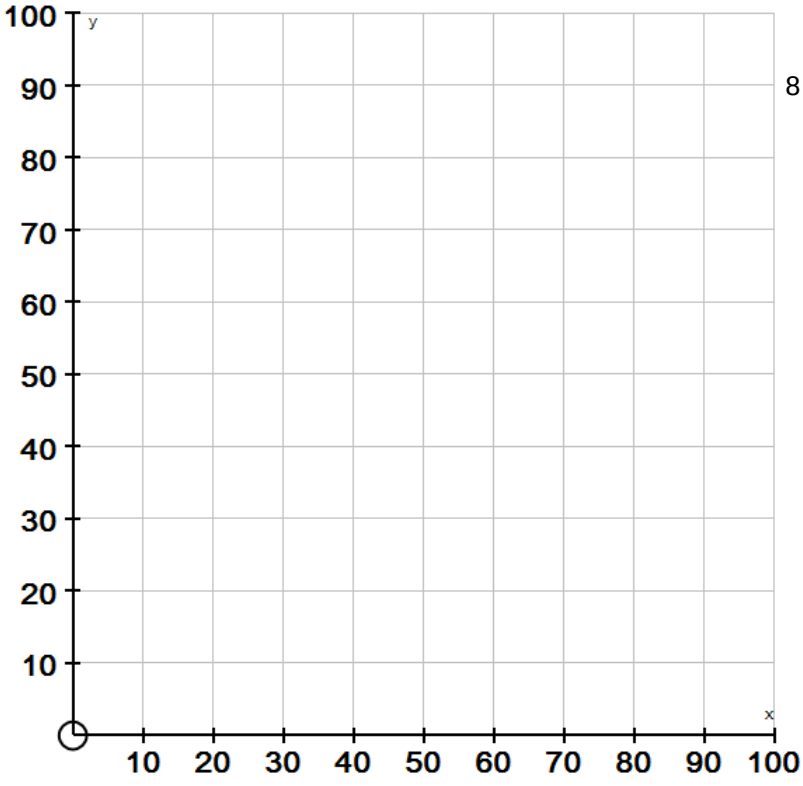
5. Write the equation for the solid line.

6. Write the equation for the dashed line.



7. In Q2 you drew $y = 3x^2 - x^3 + x - 3$

   Use its graph to write the factorised form.



8. A physicist is studying the gas-liquid boundary.

   She finds that :

   $P_g = \frac{1600}{T}$ for the gas, and

   $P_l = 100 - \frac{2500}{T}$ for the liquid

   where P is the pressure in Pa,

   and T is the temperature, in °C.

   Find the temperature when $P_g = P_l$

Answers: Non-linear Practice #2

1. Sketch: $y = \log(x - 2)$ – solid line

   asymptote $x = 2$ (**not** $y = 1$), intercept (2, 0)

2. Sketch: $y = 3x^2 - x^3 + x - 3$ – dashed line

   turning points ($^-0.15$, $^-3.08$) and (2.15, 3.08)

3. Sketch: $y = \frac{5}{x} + 1$ for $x < 0$ – dotted line

   asymptotes $x = 0$ and $y = 1$, intercept ($^-5$, 0)

4. Rewrite the function $y = \frac{5}{x} + 1$

   so that every point on it is shifted right by 4.

   $y = \frac{5}{x - 4} + 1$

5. Write the equation for the solid line.

   $y = 3^x + 1$

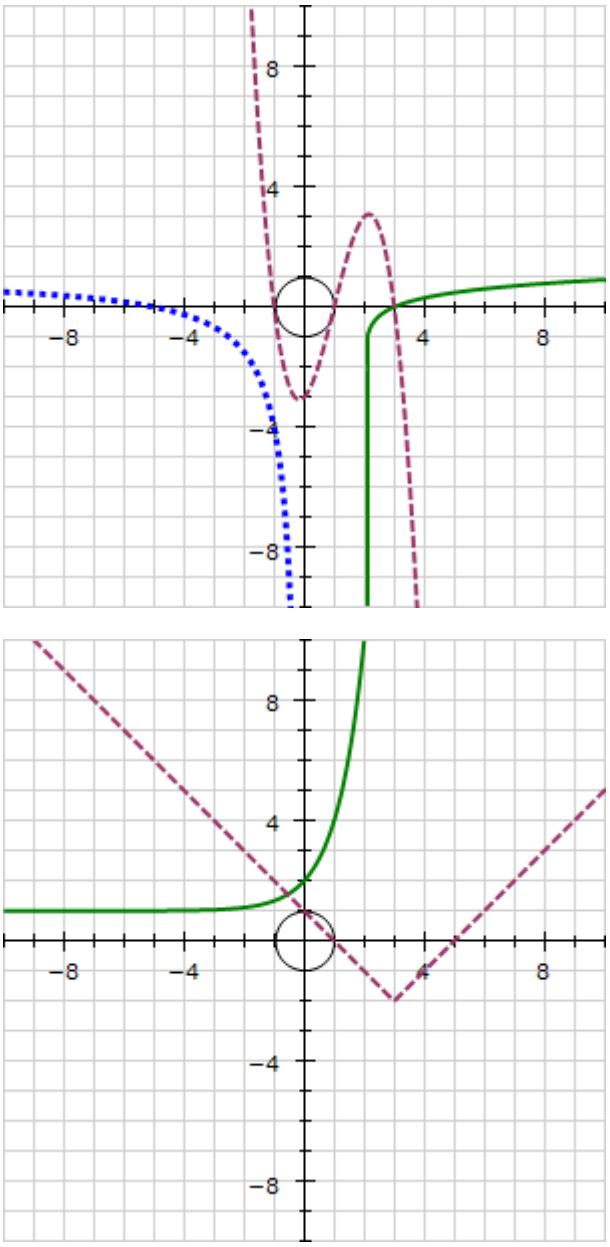
6. Write the equation for the dashed line.

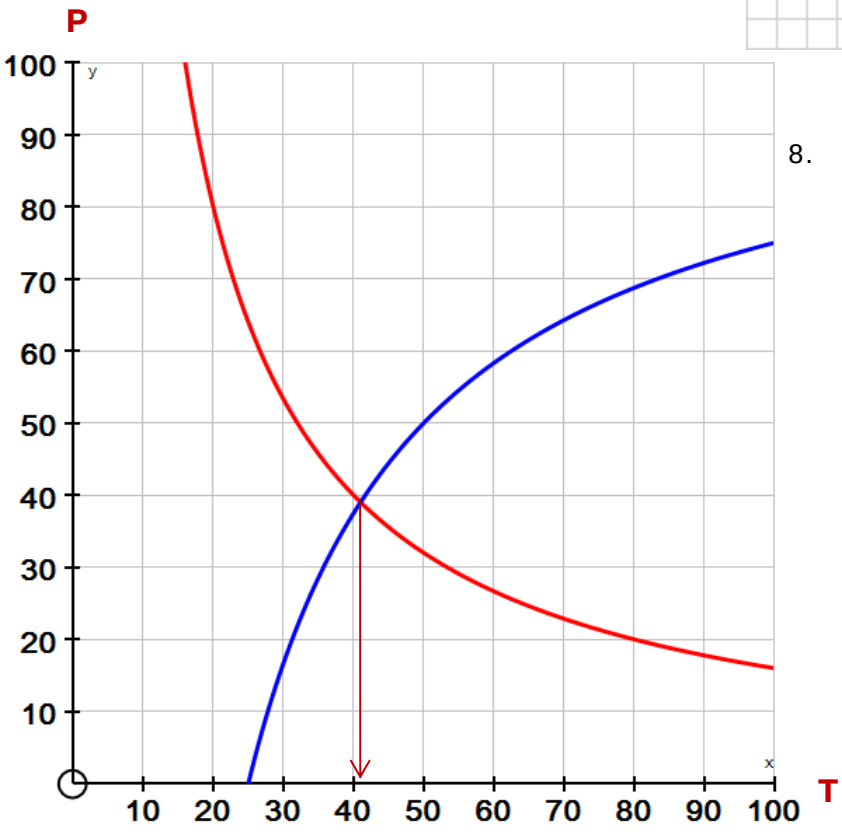
   $y = |x - 3| - 2$

7. In Q2 you drew $y = 3x^2 - x^3 + x - 3$

   Use its graph to write the factorised form.

   $y = -(x + 1)(x - 1)(x - 3)$ any order





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   where P is the pressure in Pa,

   and T is the temperature, in °C.

   Find the temperature when $P_g = P_l$

   Graph shows T = 40 – 42 °C

   (actually 41)