

1. Find an equation of a line in the form  $y = mx + b$  which passes through the points  $(1, 3)$  and  $(-1, -2)$ .

+5

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 - 3}{-1 - 1} = \frac{5}{2}$$

$$y = \frac{5}{2}x + b$$

$$3 = \frac{5}{2} \cdot 1 + b$$

$$b = \frac{1}{2}$$

$$y = \frac{5}{2}x + \frac{1}{2}$$

2. Rationalize the denominator:  $\frac{x-4}{\sqrt{x}-2}$

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$$\frac{x-4}{\sqrt{x}-2} \cdot \frac{\sqrt{x}+2}{\sqrt{x}+2} = \frac{(x-4)(\sqrt{x}+2)}{x-4} = \sqrt{x}+2$$

3. Simplify:  $\frac{\frac{1}{y} - \frac{1}{2}}{2-y}$

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$$\frac{\frac{1}{y} - \frac{1}{2}}{2-y} \cdot \frac{2y}{2y} = \frac{\frac{1}{y} \cdot 2y - \frac{1}{2} \cdot 2y}{(2-y)2y}$$

$$= \frac{2-y}{(2-y)2y}$$

$$= \frac{1}{2y}$$

4. Expand  $x(\sqrt{x} - \sqrt[3]{x})$ .

+4 
$$x(x^{\frac{1}{2}} - x^{\frac{1}{3}}) = x^{\frac{3}{2}} - x^{\frac{4}{3}}$$

5. Convert  $\frac{3\pi}{4}$  to degrees.

+3 
$$\frac{3\pi}{4} \cdot \frac{180}{\pi} = 135^\circ$$

6. Evaluate the following:

(a)  $\sin(30^\circ) = \frac{1}{2}$

+6 (b)  $\cos(5\pi/4) = -\frac{1}{\sqrt{2}}$

(c)  $\tan(\pi/3) = \sqrt{3}$

7. Below is a unit circle. Put your answers next to the corresponding points on the unit circle.

+6 (a) Point A corresponds to what angle in degree measure?

(b) Point B corresponds to what angle in radian measure?

(c) What are the coordinates of Point C?

