(4) \[ \frac{y}{6} + \frac{2y-1}{2} = \frac{y+1}{3} \]

\[
6 \left[ \frac{y}{6} + \frac{2y-1}{2} \right] = 6 \left[ \frac{y+1}{3} \right]
\]

\[
y + 3(2y-1) = 2(y+1)
\]

\[
y + 6y - 3 = 2y + 2
\]

\[
7y - 3 = 2y + 2
\]

\[
5y - 3 = 2
\]

\[
5y = 5
\]

\[
y = 1
\]

(6) \[ |x-4| = |2x+1| \]

Either \[ x-4 = 2x+1 \]

\[ -4 = x+1 \]

\[ -5 = x \]

So \[ x = 1 \] or \[ -5 \].

(11) The sum of 3 consecutive odd integers is 477.

What is the smallest of the 3?

\[ \frac{477}{3} = 159 \]

The previous one is \[ 159 - 2 = 157 \].

(8) If \[ |3x-8| > -3 \]. The solution set would be

All real numbers because an absolute value is always greater than negative.
(15) Is a triangle with sides 12.9, 17.2 and 21.5 a right triangle?

\[12.9^2 + 17.2^2 = 166.41 + 295.84 = 462.25\]
\[21.5^2 = 462.25 = 12.9^2 + 17.2^2\]

So it is a right triangle.

(26) The equation of the line perpendicular to 6x - 3y = 4 and passing through (7, 1) has a y-intercept of?

Line 1: 6x - 3y = 4

\[-3y = 4 - 6x\]
\[y = -3 + 2x\]

Line 2 is line 1 so the slope of line 2 is \(-\frac{1}{2}\).

Line passes through (7, 1), y = mx + b, y = 1, x = 7, m = \(-\frac{1}{2}\)

\[1 = \left(-\frac{1}{2}\right)(7) + b\]
\[1 = -\frac{7}{2} + b\]
\[\frac{9}{2} = b\]

(0, \frac{9}{2}) and it's "none of the above."

(37) If \(f(3) = 7\) for a linear function and its slope is 2, its y-intercept must be?

\[f(3) = 7 \implies \text{the line passes through (3, 7)}\]

we also have \(m = 2\), and \(x = 3, y = 7\)

\[\therefore y = mx + b \quad \text{plug in} \quad 7 = (2)(3) + b \implies b = -1\]
(39) The equation $by + 15 = 0$ has a slope of $?$

This is an equation with only $y$ in it.

So it's a horizontal line, which has slope $0$.

(40) If a line has a slope of $3$, a line perpendicular to it must have a slope of the negative reciprocal of $3$, which is $\frac{-1}{3}$. 