Grade 8 Mathematics Worksheet

Equation

Questions:

1. a) If *x* is any even number on the interval $(-8;4]$, write down three ordered pairs $(x;y)$ that satisfy the equation $\frac{3}{2}x-2y=5$.

b) For which integral values of *x* and *y* will $xy=6$ and $y-x=1$ share the same values?

c) Give one set of positive integral values of *x* and *y* for which $y-x>3$?

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Solution

1. a) $\frac{3}{2}x-2y=5$

Any three of the following will be correct

$(-6;-7),(-4;-5.5),(-2;-4),(0;-2.5),(2;-1),(4;1)$

b) The integral value that gives a product of 6:

x	y	$x\times y$	$y-x=1?$
1	6	6	1 – 6 = - 5
2	3	6	2 – 3 = -1
3	2	6	3 – 2 = 1
6	1	6	6 – 1 = 5
-1	-6	6	-1 – (-6) = -1+6 = 5
-2	-3	6	-2 – (-3) = -2+3 = 1
-3	-2	6	-3 – (-2) = -1
-6	-1	6	-6 – (-1) = -5

So the two answers that are possible x = 3 and y = 2 and also x = -3 and y = -2.

c) $y-x>3$ will be when $(x;y)=(6;1)$ as it will equal 5 at this point.

The equation can be solved by inspection or we can solve it algebraically.

The algebraic solution will resemble the solution to a simultaneous equation.

$y=x+1$

$\therefore (x+1)x=6$

$\therefore x^2+x-6=0$

$\therefore (x+3)(x-2)=0$

$\therefore x=2 \text{ or } x=-3$

$Then: y=3 \text{ or } y=-2$

Interpreting what the inequality is telling us is a necessary and important skill for later application in algebra.