20 in 20: Week 3 – July 16th

Ex. 1 Which number is bigger?

$\underline{25 \times 10^{40}}$ or 9×10^9

Ex. 2 Write the number in scientific notation.

$53,000,000,000$

$\boxed{5.3 \times 10^{10}}$

Ex. 3 Write the number in scientific notation. 0.000072

$\boxed{7.2 \times 10^{-5}}$

Ex. 4 Simplify the following.

$-2.5 - 1.5 = \boxed{-4}$

Ex. 5 Simplify the following.

$8.0 - 6.3 = \boxed{1.7}$

Ex. 6 Simplify the following.

$4.3 - 6.5 = \boxed{-2.2}$

Ex. 7 Simplify the following.

$36 \div 2 \cdot 6 = 18 \cdot 6$

$\boxed{\neq 108}$

Ex. 8 Solve the equation.

$\frac{2}{5}x = 8 \qquad \boxed{x = 20}$

Ex. 9 Solve the equation.

$-\frac{x}{3} = 7 \qquad \boxed{x = -21}$

Ex. 10 Simplify.

$15^0 = \boxed{1}$

Ex. 11 Write an equation of the line that goes through the following points.

$(0,3) \ (-2,-1)$

$m = \frac{-1-3}{-2-0} = \frac{-4}{-2} = 2$

$\boxed{y = 2x + 3}$

Ex. 12 Write an equation of the line that goes through the following points.

$(5,-4) \ (0,-6)$

$\frac{-6--4}{0-5} = \frac{-2}{-5}$

$\boxed{y = \frac{2}{5}x - 6}$

Ex. 13 Line $y = -8x + 1$ is graphed. What is the slope of a line parallel to this line? Perpendicular?
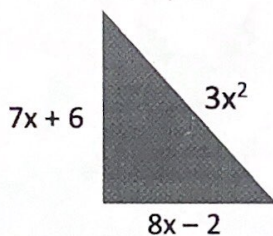
Parallel: -8
Perpendicular: $1/8$

Ex. 14 Line $y = \frac{1}{3}x + 4$ is graphed. What is the slope of a line parallel to this line? Perpendicular?

Parallel: $1/3$
Perpendicular: -3

Ex. 15 Solve the equation.

$$\frac{x}{4} + 3 = 1$$

$$\frac{x}{4} = -2$$

$$\boxed{x = -8}$$

Ex. 16 Solve the equation.

$$\frac{2x-1}{5} = 3$$

$$2x - 1 = 15$$

$$2x = 16$$

$$\boxed{x = 8}$$

Ex. 17 Find the perimeter and the area of the shape.

$7x + 6$ $3x^2$

$8x - 2$

$$\frac{1}{2}(7x+6)(8x-2)$$

$$(7x+6)(4x-1)$$

Perimeter: $3x^2 + 15x + 4$
Area: $28x^2 + 17x - 6$

Ex. 18 Solve and graph the inequality.

$$3x + 4 < 25$$

$$3x < 21$$

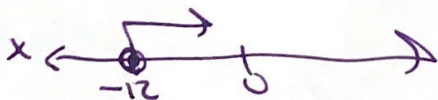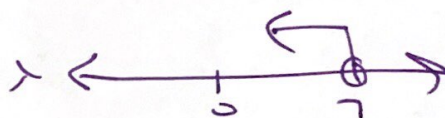$$x < 7$$

Ex. 19 Solve and graph the inequality.

$$-\frac{3}{4}x + 1 \le 10$$

$$-\frac{3}{4}x \le 9$$

$$x \ge -12$$

Ex. 20 Solve the system of equations.

$$y = 3x + 4$$
$$2x + 3y = 1$$

$$\boxed{(-1, 1)}$$

$$2x + 3(3x+4) = 1$$
$$2x + 9x + 12 = 1$$
$$11x = -11$$
$$x = -1$$