§1 Sunday, 07/12/20 Lesson Printable

§1.1 Multiplying by 101 Problems

1. $1234 \times 101 =$ _____
2. $10.1 \times 234 =$ _____
3. $369 \times 101 =$ _____
4. $34845 \div 101 =$ _____
5. $22422 \div 101 =$ _____
6. $202 \times 123 =$ _____
7. If 6 balls cost \$6.06, then 15 balls cost: \$ _____
8. $\mathbf{404} \times \mathbf{1111} =$ _____
9. (*) $(48 + 53) \times 151 =$ _____
10. (*) $8888 \times 62.5\% \times \frac{5}{11} =$ _____

§1.2 Equation Problems

1. Find $32^2 + 2 \cdot 32 \cdot 68 + 68^2$.
2. Find $2^3 - 3 \cdot 2^2 \cdot 8 + 3 \cdot 2 \cdot 8^2 - 8^3$.
3. Find the slope of the line that goes through $(5, 7)$ and $(6, 8)$.
4. Find the line with a slope of 3 and y-intercept of -2.
5. Find the equation of the line going through $(2, 3)$ and $(7, 13)$.
6. Find the slope of the line with a y-intercept of 3 and a x-intercept of 4.
7. At what point do the lines $2x + 9y = 7$ and $x = 32 - 4.5y$ intersect?
8. Find the intersection of the lines $y = ax + b$ and $y = cx + d$ in terms of a, b, c, d, given that they are not parallel.
9. (Mathcounts) Chris graphs the line $y = 3x+7$ in the coordinate plane, while Sebastian graphs the line $y = ax+b$, for some numbers a and b. The x-intercept and y-intercept of Sebastian's line are double the x-intercept and y-intercept of Chris's line, respectively. What is the value of the sum $a + b$?

As per the request of my students, I will add in some more equation problems:

1. Find the equation of the line with a slope of 4 with an x-intercept of 20.
2. Solve for x:
$$4x - 7(2 - x) = 3x + 2.$$
3. Find the intersection of $y = 2x + 3$ and $y = 4x + 7$.
4. Find the intersection of $y = 2x + 3$ and $-4x + 2y = 7$.
5. Solve for x:
$$\frac{4 - 2x}{3} = \frac{3}{4} - \frac{5x}{6}.$$
6. (Khan Academy) A young sumo wrestler decided to go on a special diet to gain weight rapidly. W represents the wrestler's weight (in kilograms) after t months. $W = 80 + 5.4t$. What was the wrestler's weight before his special diet?
7. (Generalized Khan Academy) Ever since Renata moved to her new home, she's been keeping track of the height of the tree outside her window. H represents the height of the tree (in centimeters), t years since Renata moved in. $H = 210 + 33t$. What was the height of the tree right before Renata moved in, and how many centimeters per year does it grow? What is its height in **meters** after 20 years?
8. (Khan Academy) A big ship drops its anchor. E represents the anchor's elevation relative to the water's surface (in meters) as a function of time t (in seconds). $E = -2.4t + 75$. How far does the anchor drop every 5 seconds?