

MATH 6A/D: HOMEWORK 2 (MATH 5 REVIEW)
DEADLINE IS FRIDAY, OCTOBER 2, 2020

1. Simplify the following expression:

$$\frac{(x^2y^2) \cdot x^3}{x^2y^5}$$

2. Let $a = 2 \cdot 10^8$, $b = 10^5$. Compute $a^2 \cdot b$, $\frac{a}{b}$, $a^2 \div b^3$.
3. If $a = 2^{-13}3^9$, $b = 2^{11}3^{-7}$, what is the value of ab ? of a/b ?
4. Write the following numbers using scientific notation.
(a) the distance from Earth to Pluto is $\approx 7,527,000,000$ km;
(b) the distance from Earth to the star Sirius is $\approx 81,900,000,000,000$ km;
5. Factor the following number into primes: $99^2 - 9^2$. [Hint: you do not have to compute this number.]
6. Find the following square roots. If you can not find the number exactly, at least say between which two whole numbers the answer is, e.g., between 5 and 6.
(a) $\sqrt{81}$
(b) $\sqrt{10,000}$
(c) $\sqrt{10^8}$
7. If, in a right triangle, one leg has length 1 and the hypotenuse has length 2, what is the other leg?
8. Simplify: $(\sqrt{17})^2$, $(\sqrt{13})^4$, $(\sqrt{11})^3$, $\sqrt{2^4 3^6}$, $\sqrt{2^4 3^5}$.
9. We roll two dice. What is the probability of getting sum of two numbers equal to 4?
10. If we toss a coin 5 times, what is the probability that **at least one** will be heads?
11. A license plate consists of 3 letters, followed by three digits. How many possible license plates are there?
12. We roll two identical dice. What is the probability of getting 1 and 3?
13. We roll two identical dice. What is the probability of getting sum of two numbers equal to 4?
14. If we toss a coin 5 times, what is the probability that at least one will be heads?
15. How many ways are there to seat 15 students in a classroom which has 15 chairs? If the room has 25 chairs?
16. Solve equations:

(a) $\frac{3}{8}x = \frac{1}{3}$

(b) $|2x - 5| = 1$

(c) $\frac{x - 2}{x - 1} = 3$