**MATH 5: HANDOUT 14**
**POWERS. REVIEW.**

**1.** Simplify:

(a) $\dfrac{3^7 2^7}{2^3 2^4}$

(b) $\dfrac{6^5 2^4}{3^5 2^5}$

(c) $\dfrac{7^9 2^5}{7^2 2^4}$

(d) $\dfrac{x^2 y^2 x^{-3}}{x^2}$

(e) $\left(7^4 11^2 11^{-5} 7^2\right)^2$

**2.** Solve the following equation: $3 - 5(2 - x) = 18$

**3.** Do the operations with binary numbers:
$101101 + 110100$
$11011101 - 10010$

**4.** If $a = 3 \times 10^{-7}$, $b = 5 \times 10^{-5}$, what is
- $a^2$

- $1/b$

- $a^2 \div b^3$

**5.** For the following problem, you need to know that the speed of light is about $300,000$ km/sec, and one year is about $3 \cdot 10^7$ seconds.
(a) How long would it take light to travel from Sun to Earth? The distance is about $1.5 \cdot 10^8$ km
(b) In astronomy, a common unit of distance is a light year: the distance light covers in one year. How many kilometers is it?

**6.** Simplify:

(a) $\left(\dfrac{5g^4 b^5}{4g^2 b^3}\right)^3$

(b) $\dfrac{(-ab)^8}{(ab)^2}$

**7.** * Solve (different letters stand for different digits):

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        FORTY
+         TEN
+         TEN
      ———————
        SIXTY
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