MATH 5: HANDOUT 14
POWERS. REVIEW.

CLASSWORK

1. Open parenthesis and simplify:

(a) $(a^4)^2$

(b) $(a^5)^3 \div a^{14}$

(c) $(b^3)^2 \cdot b^4$

(d) $a^2(\frac{a}{b})^4$

(e) $(\frac{c^2}{3d})^3$

(f) $\frac{(a \cdot b)^3}{b^2}$

2. Simplify:

(a) $(2z^2 \cdot 3z^3 \cdot z)^2$

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

(c) $2x^2 \cdot x^3 - x^7 \div x^2$

(d) $\frac{(-ab)^8}{(ab)^2}$

(e) $\frac{18^{n+3}}{3^{2n+5} \cdot 2^{n-2}}$

(f) $\left(\frac{3ab^3}{15b}\right)^2 \cdot \frac{75c}{a^2b^6}$

HOMEWORK

1. Simplify:

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

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

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

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

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

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

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

$$\begin{array}{rr} & \texttt{FORTY} \\ + & \texttt{TEN} \\ + & \texttt{TEN} \\ \hline & \texttt{SIXTY} \end{array}$$