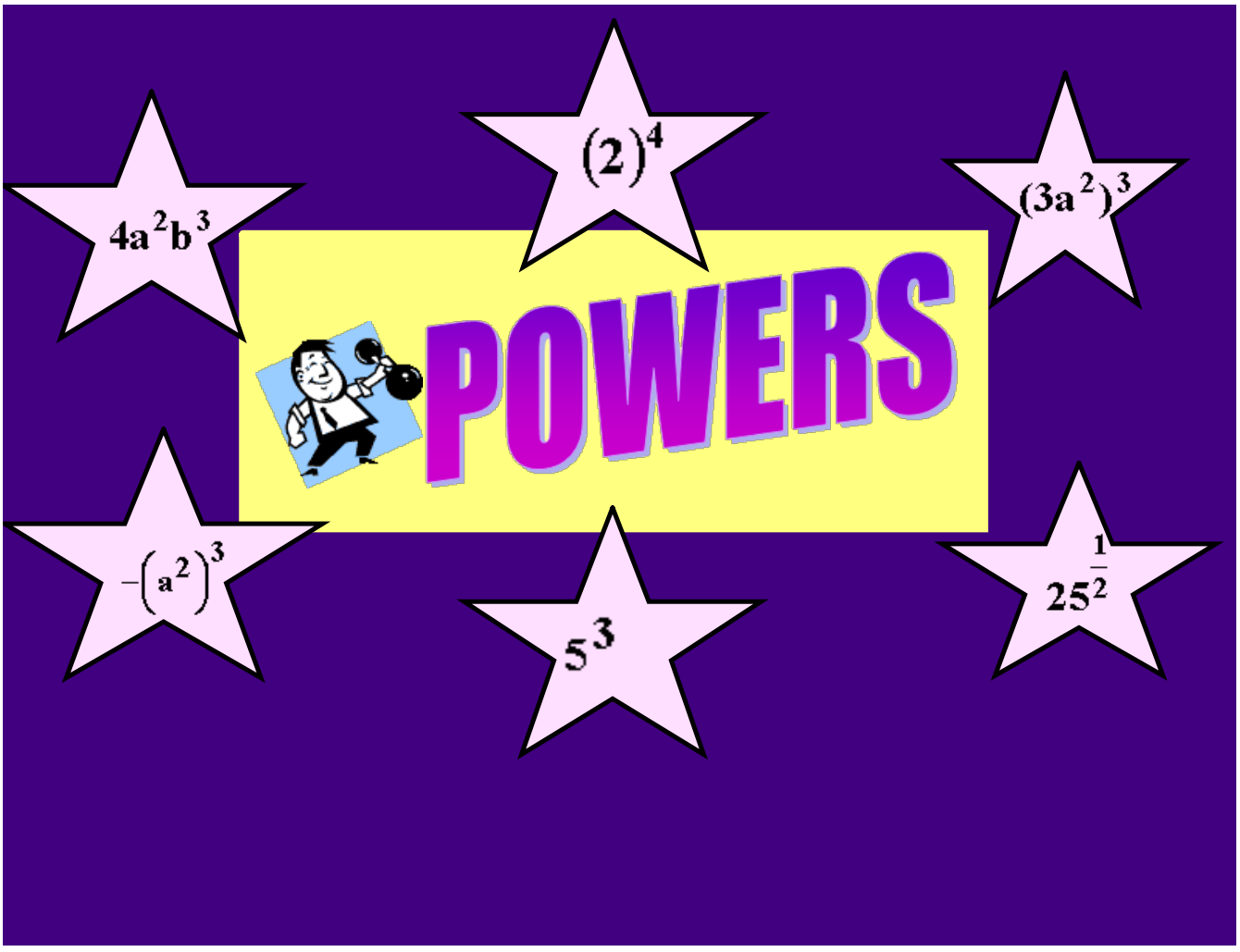
$4a^2b^3$
$(2)^4$
$(3a^2)^3$
POWERS
$-(a^2)^3$
5^3
$25^{\frac{1}{2}}$


8^3

Exponents

- Exponents are shorthand for multiplication:
  (5) (5) = 5^2 (5) (5) (5) = 5^3
- The "exponent" stands for however many times the term is being multiplied.

Exponent → 5^3 (3 times) $5 \times 5 \times 5 = 125$

- The term that's being multiplied is called the "base".

Base → 5^3

Write each power as a product, then evaluate.

#1 a) 3^4

$3 \times 3 \times 3 \times 3$

$= 81$

b) 5^3

$5 \times 5 \times 5$

$= 125$

c) $\left(\frac{2}{3}\right)^3$

$\left(\frac{2}{3}\right)\left(\frac{2}{3}\right)\left(\frac{2}{3}\right)$

$= \frac{8}{27}$

d) $\left(\frac{4}{5}\right)^2$

$\left(\frac{4}{5}\right)\left(\frac{4}{5}\right)$

$= \frac{16}{25}$

Write each product as a power, then evaluate.

#2

a) (4)(4)(4)

4^3

b) (-6)(-6)(-6)(-6)(-6)

$(-6)^5$ ← ODD: −

6

-7776

Powers with a Twist

Can you see the difference?

-4^2

$-(4)(4)$

-16

$(-4)^2$ → even

$(-4)(-4)$

$=+16$

$(-1)^{2} = 1$

$(-1)^{3} = -1$

$(-1)^{4} = 1$

$(-1)^{5} = -1$

Did you see a pattern??

$(-1)^{10247} = -1$ $(-1)^{29584} = +1$

$(-1)^{10247} = -1$ $(-1)^{29584} = 1$

- Evaluating powers when the base is negative...
  - If the exponent is even the answer will be positive.
  - If the exponent is odd the answer will be negative.

Check out pages 55 and 56.

Please complete questions...

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