



## In Class Exercises Set A

### Arithmetic 1

(AV, exponents, radicals, exponential growth, statistics)

10 minutes

- 1) If  $8^{2x} = 2^{5x+4}$ , find the value of  $x$ .
- A)  $-1$
  - B)  $0$
  - C)  $4$
  - D)  $8$
- 2) Every year, the money in Arjun's savings account increases by 1% of its value. This situation is most like which of the following?
- A) A boy receives a \$100 gift from his grandmother every year for his birthday.
  - B) A colony of bacteria doubles in size every hour.
  - C) The Pirates win 5 games every month.
  - D) The Penguins win 70% of their games each season.
- 3) The half-life of Carbon-14 is 5730 years [Carbon-14 will decay exponentially such that it will reach half its principal amount in 5730 years]. Which of the following equations best models the mass,  $m$ , in grams of a 10 g sample of Carbon-14  $t$  years from now?
- A)  $m = 10\left(\frac{1}{2}\right)^{573}$
  - B)  $m = 10\left(\frac{1}{2}\right)^{\frac{t}{5730}}$
  - C)  $m = 10(5730)^{\frac{t}{2}}$
  - D)  $m = 10(5730)^{\frac{1}{2t}}$
- 4) Let  $f$  be an exponential function such that  $f(t) = b^{kt-h}$ . What is the value of  $\frac{f(10)}{f(5)}$ ?
- A)  $5k$
  - B)  $5(k - h)$
  - C)  $b^{5k}$
  - D)  $b^{5(k-h)}$



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5) For  $x > 0$  and  $y > 0$ , what is the value of

$$\sqrt[3]{64x^8y^{10}}?$$

- A)  $4x^2y^3\sqrt[3]{xy^2}$
- B)  $4x^2y^3\sqrt[3]{x^2y}$
- C)  $8x^3y^3\sqrt[3]{xy}$
- D)  $8x^3y^4\sqrt[3]{xy^2}$

6) Carol takes a survey of students in her high school. Out of the students sampled, 24% have 2 or more siblings, of whom 60% have pets. If there are 2000 students at Carol's high school, how many would be expected to have 2+ siblings and **no** pets?

- A) 192
- B) 240
- C) 288
- D) 260

7) Find a value for  $x$  that satisfies  $|x + 5| = 8$ .

8) A positive number multiplied by its cube root is 9 times as large as the cube root of its square. What is the number?