Warm Up Questions

1. The Mayan used several different calendar systems; one system used 365 days, another system used 260 days. Suppose the first day of both calendars occurred on the same day. After how many days would they again occur on the same day? About how long is this in years? Assume 1 year has 365 days.

2. A cube has surface area 6534 square feet.
What is its volume?

3. Danielle and Chris live in the Northwest Territories in isolation. Food is only delivered to them by plane. Danielle gets her food delivered every 40 days, while Chris gets his food every 90 days. If both people get there food delivered today when will they both get their food delivered on the same day again?

4. The volume of a cube is 21952. What is the surface area?

The Mayan used several different calendar systems; one system used 365 days, another system used 260 days. Suppose the first day of both calendars occurred on the same day. After how many days would they again occur on the same day? About how long is this in years? Assume 1 year has 365 days.

$260 \rightarrow 2 \times 2 \times 5 \times 13 = 2^2 \times 5^1 \times 13^1$

$365 \rightarrow 5 \times 73 = 5^1 \times 73^1$

$2^2 \times 5^1 \times 13^1 \times 73$

$4 \times 5 \times 13 \times 73$

$= 18980$ Days

18 980 Days
÷ 365 Days
= 52 years

3 A cube has surface area 6534 square feet. What is its volume?

$SA = 6(s \times s)$

$6534 \rightarrow$ Surface Area

$\div 6 \rightarrow$ Sides

$= 1089 \rightarrow$ Area of a Square ($s \times s$)

$\sqrt{1089} = 3 \cdot 3 \cdot 11 \cdot 11$

$= (3 \times 3)(11 \times 11)$

$= 3 \times 11$

$= 33$

$\sqrt{1089} = 33$

$V = l \times w \times h$

$V = 33 \times 33 \times 33$

$V = 35,937 \text{ ft}^3$

3. Danielle and Chris live in the Northwest Territories in isolation. Food is only delivered to them by plane. Danielle gets her food delivered every 40 days, while Chris gets his food every 90 days. If both people get there food delivered today when will they both get their food delivered on the same day again?

$40 \rightarrow 2 \times 2 \times 2 \times 5 = 2^3 \times 5^1$

$90 \rightarrow 2 \times 3 \times 3 \times 5 = 2^1 \times 3^2 \times 5^1$

$2^3 \times 3^2 \times 5^1$

$8 \times 9 \times 5$

$= 360$ days

4. The volume of a cube is 21952. What is the surface area?

$V = L \times W \times H$

$21952 = S \times S \times S$

$\sqrt[3]{21952} = \sqrt[3]{S^3}$

$S = 28$

$SA = 6(L \times W)$

$= 6(S \times S)$

$= 6(28 \times 28)$

$= 4704$

$\sqrt[3]{21952} \Rightarrow 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 7 \times 7 \times 7$

$2 \times 2 \times 7$

$= 28$