Regents Exam Questions F.IF.C.7: Graphing Root Functions 2 www.jmap.org

## F.IF.C.7: Graphing Root Functions 2

1 The formula $S=20 \sqrt{t+273}$ is used to determine the speed of sound, $S$, in meters per second, near Earth's surface, where $t$ is the surface temperature, in degrees Celsius. Which graph best represents this function?
1)

2)

3)

4)


2 The equation $V=20 \sqrt{C+273}$ relates speed of sound, $V$, in meters per second, to air temperature, $C$, in degrees Celsius. What is the temperature, in degrees Celsius, when the speed of sound is 320 meters per second? [The use of the accompanying grid is optional.]

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3 The number of people, $y$, involved in recycling in a community is modeled by the function
$y=90 \sqrt{3 x}+400$, where $x$ is the number of months the recycling plant has been open. Construct a table of values, sketch the function on the grid, and find the number of people involved in recycling exactly 3 months after the plant opened. After how many months will 940 people be involved in recycling?


4 On the set of axes below, graph the function represented by $y=\sqrt[3]{x-2}$ for the domain $-6 \leq x \leq 10$.


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Answer Section
1 ANS: 2
REF: 060718b
2 ANS:
$-17$.

$$
\begin{aligned}
V & =20 \sqrt{C+273} \\
320 & =20 \sqrt{C+273} \\
16 & =\sqrt{C+273} \\
256 & =C+273 \\
C & =-17
\end{aligned}
$$

REF: 060426b
3 ANS:

$y=90 \sqrt{3(3)}+400=90(3)+400=670$.

$$
\begin{aligned}
940=90 & \sqrt{3 x}+400 \\
540 & =90 \sqrt{3 x} \\
6 & =\sqrt{3 x} \\
36 & =3 x \\
x & =12
\end{aligned}
$$

REF: 010532b

ID: A

4 ANS:


REF: fall1304ai

