Name: .... Class: ....
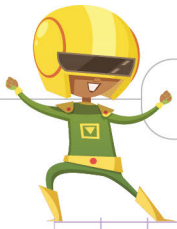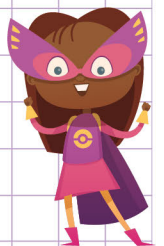
Geometric sequences with fractions

Find the next fraction in the following sequences.

a. $\dfrac{1}{3}$, $\dfrac{1}{6}$, $\dfrac{1}{12}$, $\dfrac{1}{24}$,.....

b. $\dfrac{1}{6}$, $\dfrac{2}{18}$, $\dfrac{4}{54}$, $\dfrac{8}{162}$,.....

c. $\dfrac{1}{2}$, $\dfrac{1}{8}$, $\dfrac{1}{32}$, $\dfrac{1}{128}$,.....

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Name: .... Class: ....

Geometric sequences with fractions

Find the next fraction in the following sequences.

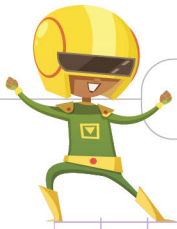**a.** $\dfrac{1}{3}$, $\dfrac{1}{6}$, $\dfrac{1}{12}$, $\dfrac{1}{24}$,......

First of all, we need to find the rule. To find the rule, divide the second fraction by the first and we confirm again by dividing the third by the second fraction.

$\dfrac{1}{6} \div \dfrac{1}{3} \longrightarrow \dfrac{1}{6} \times \dfrac{3}{1} = \dfrac{1}{2}$

$\dfrac{1}{12} \div \dfrac{1}{6} \longrightarrow \dfrac{1}{12} \times \dfrac{6}{1} = \dfrac{1}{2}$

So, the general rule is multiply by $\dfrac{1}{2}$

Therefore the next fraction is $\dfrac{1}{24} \times \dfrac{1}{2} \longrightarrow \boxed{\dfrac{1}{48}}$

b. $\dfrac{1}{6}$, $\dfrac{2}{18}$, $\dfrac{4}{54}$, $\dfrac{8}{162}$,......

First of all, we need to find the rule. To find the rule, divide the second fraction by the first and we confirm again by dividing the third by the second fraction.

$\dfrac{2}{18} \div \dfrac{1}{6} \longrightarrow \dfrac{2}{18} \times \dfrac{6}{1} = \dfrac{2}{3}$

$\dfrac{4}{54} \div \dfrac{2}{18} \longrightarrow \dfrac{4}{54} \times \dfrac{18}{2} = \dfrac{2}{3}$

So, the general rule is multiply by $\dfrac{2}{3}$

Therefore the next fraction is $\dfrac{8}{162} \times \dfrac{2}{3} \longrightarrow \boxed{\dfrac{16}{486}}$

c. $\dfrac{1}{2}$, $\dfrac{1}{8}$, $\dfrac{1}{32}$, $\dfrac{1}{128}$,......

here the general rule is multiply by $\dfrac{1}{4}$

Therefore the next fraction is $\dfrac{1}{128} \times \dfrac{1}{4} \longrightarrow \boxed{\dfrac{1}{512}}$