

## Watch. Practice. Understand. | Lesson 118

Algebra II Trigonometry Honors Big Idea Chapter 7 Rational Functions Part II

Watch the matching video: <https://www.youtube.com/watch?v=cGv14CP7Xtc>

Practice focus: Rational expressions and graphs

Original extra practice matched to the listed lesson topic.

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Show your reasoning and check units.

**01** Simplify  $(x^2 - 9)/(x^2 - x - 6)$ , retaining restrictions.

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**02** Find asymptotes of  $f(x) = (2x + 1)/(x - 3)$ .

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**03** Find the hole in  $f(x) = (x^2 - 4)/(x - 2)$ .

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**04** Solve  $1/x + 1/(x + 1) = 3/2$ .

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## Worked answers | Lesson 118

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Watch the matching video: <https://www.youtube.com/watch?v=cGv14CP7Xtc>

Practice focus: Rational expressions and graphs

Original extra practice matched to the listed lesson topic.

**01** Simplify  $(x^2 - 9)/(x^2 - x - 6)$ , retaining restrictions.

Factor and cancel  $x - 3$ :  $(x + 3)/(x + 2)$ , with  $x \neq 3$  and  $x \neq -2$ .

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**02** Find asymptotes of  $f(x) = (2x + 1)/(x - 3)$ .

Denominator zero gives vertical asymptote  $x = 3$ . Equal degrees give horizontal asymptote  $y = 2$ .

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**03** Find the hole in  $f(x) = (x^2 - 4)/(x - 2)$ .

For  $x \neq 2$ ,  $f(x) = x + 2$ . Missing point:  $(2, 4)$ .

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**04** Solve  $1/x + 1/(x + 1) = 3/2$ .

Exclude 0, -1. Multiply by  $2x(x + 1)$ :  $2(2x + 1) = 3x(x + 1)$ . Roots:  $x = 1$  or  $-2/3$ ; both check.