

Assignment 11: Factoring and Rational Expressions Date _____ Period _____

Factor each completely.

1) $x^2 + 5x - 50$

2) $n^2 + 8n - 9$

3) $r^2 - r - 30$

4) $n^2 - 9n - 10$

5) $n^2 - n - 6$

6) $28x^2 + 212x + 112$

7) $30r^2 + 162r + 168$

8) $3x^3 - 34x^2 + 80x$

9) $3n^2 + 23n - 70$

10) $5m^2 + 26m - 24$

Simplify each and state the excluded values.

11) $\frac{28x - 12}{8x - 16}$

12) $\frac{24n + 24}{16n - 8}$

13) $\frac{m^2 + 15m + 56}{5m + 35}$

14) $\frac{r^2 + 4r - 32}{r^2 - 10r + 24}$

Simplify each expression.

15) $\frac{3x}{15x^2 + 21x} \div \frac{7x^2}{25x + 35}$

16) $\frac{12n + 30}{6} \cdot \frac{8n^2}{10n + 25}$

17) $\frac{b + 4}{4b^3 - 36b^2} \div \frac{1}{b - 9}$

18) $\frac{v - 9}{-v^2 + 17v - 72} \div \frac{v + 3}{v^2 - 5v - 24}$

19) $\frac{x - 2}{5x - 3} + \frac{4}{3x}$

20) $\frac{6}{2n} + \frac{2n - 4}{3(n + 2)}$

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Factor each completely.

1) $x^2 + 5x - 50$

$(x + 10)(x - 5)$

2) $n^2 + 8n - 9$

$(n + 9)(n - 1)$

3) $r^2 - r - 30$

$(r - 6)(r + 5)$

4) $n^2 - 9n - 10$

$(n + 1)(n - 10)$

5) $n^2 - n - 6$

$(n - 3)(n + 2)$

6) $28x^2 + 212x + 112$

$4(7x + 4)(x + 7)$

7) $30r^2 + 162r + 168$

$6(5r + 7)(r + 4)$

8) $3x^3 - 34x^2 + 80x$

$x(3x - 10)(x - 8)$

9) $3n^2 + 23n - 70$

$(3n - 7)(n + 10)$

10) $5m^2 + 26m - 24$

$(5m - 4)(m + 6)$

Simplify each and state the excluded values.

11) $\frac{28x - 12}{8x - 16}$

$\frac{7x - 3}{2(x - 2)} ; \{2\}$

12) $\frac{24n + 24}{16n - 8}$

$\frac{3(n + 1)}{2n - 1} ; \left\{\frac{1}{2}\right\}$

13) $\frac{m^2 + 15m + 56}{5m + 35}$

$\frac{m + 8}{5} ; \{-7\}$

14) $\frac{r^2 + 4r - 32}{r^2 - 10r + 24}$

$\frac{r + 8}{r - 6} ; \{4, 6\}$

Simplify each expression.

15) $\frac{3x}{15x^2 + 21x} \div \frac{7x^2}{25x + 35} \quad \frac{5}{7x^2}$

16) $\frac{12n + 30}{6} \cdot \frac{8n^2}{10n + 25} \quad \frac{8n^2}{5}$

17) $\frac{b + 4}{4b^3 - 36b^2} \div \frac{1}{b - 9} \quad \frac{b + 4}{4b^2}$

18) $\frac{v - 9}{-v^2 + 17v - 72} \div \frac{v + 3}{v^2 - 5v - 24}$
 -1

19) $\frac{x - 2}{5x - 3} + \frac{4}{3x}$
 $\frac{3x^2 + 14x - 12}{3x(5x - 3)}$

20) $\frac{6}{2n} + \frac{2n - 4}{3(n + 2)}$
 $\frac{5n + 18 + 2n^2}{3n(n + 2)}$