

11R

TC 1.2
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$$a) \quad 2 + \frac{1}{2} = \frac{2}{1} + \frac{1}{2} = \frac{5}{2}$$

$$2 + \frac{1}{\left(\frac{5}{2}\right)} = \frac{2}{1} + \frac{2}{5} = \frac{12}{5}$$

$$2 + \frac{1}{\left(\frac{12}{5}\right)} = \frac{2}{1} + \frac{5}{12} = \frac{29}{12}$$

$$1 + \frac{1}{\frac{29}{12}} = \frac{1}{1} + \frac{12}{29} = \boxed{\frac{41}{29}}$$

$$b) \quad - \left[ -3a^3b^2c^2 - (4a^2b^3c^3 + 3a^3b^2c^2 + 2a^2b^3c^3) \right] +$$

$$(-5a^3b^2c^2 + 3a^2b^3c^3) =$$

$$- \left[ -3a^3b^2c^2 - 4a^2b^3c^3 - 3a^3b^2c^2 - 2a^2b^3c^3 \right]$$

$$- 5a^3b^2c^2 + 3a^2b^3c^3 =$$

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$$\begin{aligned}
& \cancel{3a^{3/2}b^2c^2} + 4a^{2/3}b^3c^3 + \cancel{3a^{3/2}b^2c^2} + 2a^{2/3}b^3c^3 \\
& \quad - 5a^{3/2}b^2c^2 + 3a^{2/3}b^3c^3 =
\end{aligned}$$

$$a^{3/2}b^2c^2 + 9a^{2/3}b^3c^3$$

d)

$$\begin{array}{ccccccc}
& & & & & & 1 \\
& & & & & & 1 & 1 \\
& & & & & & 1 & 2 & 1 \\
& & & & & & 1 & 3 & 3 & 1 \\
& & & & & & 1 & 4 & 6 & 4 & 1 \\
& & & & & & 1 & 5 & 10 & 10 & 5 & 1 \\
& & & & & & 1 & 6 & 15 & 20 & 15 & 6 & 1 \\
& & & & & & 1 & 7 & 21 & 35 & 35 & 21 & 7 & 1
\end{array}$$

$$(x + y)^7 =$$

$$\begin{aligned}
& x^7 + 7 \cdot x^6y + 21 \cdot x^5y^2 + 35 \cdot x^4y^3 + 35 \cdot x^3y^4 + 21 \cdot x^2y^5 \\
& \quad + 7 \cdot xy^6 + y^7
\end{aligned}$$

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d)

	$t^5$	$-t^4$	$-t^3$	$-t^2$	
$t^9$	$t^{14}$	$-t^{13}$	$-t^{12}$	$-t^{11}$	
$t^8$	$t^{13}$	$-t^{12}$	$-t^{11}$	$-t^{10}$	
$t^7$	$t^{12}$	$-t^{11}$	$-t^{10}$	$-t^9$	
$t^6$	$t^{11}$	$-t^{10}$	$-t^9$	$-t^8$	
$t$	$t^6$	$-t^5$	$-t^4$	$-t^3$	
1	$t^5$	$-t^4$	$-t^3$	$-t^2$	

$$t^{14} - t^{12} - 2t^{11} - 3t^{10} - 2t^9 - t^8 + t^6 - 2t^4 - 2t^3 - t^2$$

e)

$$(x+1) - x^2(x+1) = 1 \cdot (x+1) - x^2(x+1) =$$

$$(1-x^2)(x+1) = (1+x)(1-x)(x+1) =$$

$$(x+1)^2(1-x)$$

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$$f) \quad x = \frac{-13 \pm \sqrt{141}}{2} \begin{cases} -0,563 \\ -12,437 \end{cases}$$

$$x^2 + 13x + 7 \approx (x + 0,563)(x + 12,437)$$

$$g) \quad \left(\frac{1}{5}\right)^3 - 5 + 5 \cdot \left(\left(\frac{1}{5}\right)^2 - 2\right) =$$

$$\frac{1}{125} - 5 + 5 \left(\frac{1}{25} - 2\right) =$$

$$\frac{1}{125} - 5 + \frac{1}{5} - 10 =$$

$$\frac{1}{125} + \frac{25}{125} \frac{1875}{125} = -\frac{1849}{125}$$