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| ***GR 10 REVISION: ALGEBRAIC FRACTIONS*** |
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| Simplify: |
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| 1. |  |  | 2. |  |  |
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| 3. |  |  | 4. |  |  |
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| 5. |  |  | 6. |  |  |
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| 7. |  |  | 8. |  |  |
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| 9. |  |  | 10. |  |  |
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| 11. |  |  | 12. |  |  |
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***ANSWERS***

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| 1. |  | $$=\frac{2x\left(x-y\right)}{4\left(x-y\right)\left(x+y\right)}$$$$=\frac{x}{2\left(x+y\right)}$$ | 2. | $$=\frac{x^{2}\left(x-9\right)\left(x+9\right)}{2x}×\frac{6}{x\left(x-9\right)}$$$$=\frac{\left(x+9\right)}{1}×\frac{3}{1}$$$$=3\left(x+9\right)$$ |
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| 3. |  | $$=\frac{2\left(6t^{2}\right)-2\left(3t^{2}+6t\right)-3t\left(3t-4\right)}{6t^{2}}$$$$=\frac{12t^{2}-6t^{2}-12t-9t^{2}+12t}{6t^{2}}$$$$=\frac{-3t^{2}}{6t^{2}}$$$$=\frac{-1}{2}$$ | 4. |  | $$=\frac{2x+3}{2\left(x-2\right)\left(x-1\right)}-\frac{3}{x\left(x-1\right)}$$$$=\frac{x\left(2x+3\right)-3.2\left(x-2\right)}{2x\left(x-2\right)\left(x-1\right)}$$$$=\frac{2x^{2}+3x-6x+12}{2x\left(x-2\right)\left(x-1\right)}$$$$=\frac{2x^{2}-3x+12}{2x\left(x-2\right)\left(x-1\right)}$$ |
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| 5. |  | $$=\frac{\left(2x-7\right)\left(x+3\right)}{-\left(2x-7\right)\left(2x+7\right)}$$$$=\frac{\left(x+3\right)}{-\left(2x+7\right)}$$ | 6. | $$=\frac{3\left(x-2\right)}{\left(2x-1\right)\left(2x+1\right)}×\frac{3\left(2x-1\right)}{9\left(x-2\right)}×\frac{2x\left(2x+1\right)}{4x}$$$$=\frac{1}{2}$$ |
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| 7. | $$=\frac{x}{\left(x-y\right)\left(x+y\right)}+\frac{2x}{\left(x-y\right)^{2}}$$$$=\frac{x\left(x-y\right)+2x\left(x+y\right)}{\left(x-y\right)^{2}\left(x+y\right)}$$$$=\frac{x^{2}-xy+2x^{2}+2xy}{\left(x-y\right)^{2}\left(x+y\right)}$$$$=\frac{3x^{2}+xy}{\left(x-y\right)^{2}\left(x+y\right)}$$ | 8. | $$=\frac{\left(p+q\right)\left(p^{2}-pq+q^{2}\right)}{p^{2}}×\frac{3\left(p-q\right)}{\left(p-q\right)\left(p+q\right)}$$$$=\frac{\left(p^{2}-pq+q^{2}\right)}{p^{2}}×\frac{3}{1}$$$$=\frac{3\left(p^{2}-pq+q^{2}\right)}{p^{2}}$$ |
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| 29. | $$=\frac{h}{\left(h-f\right)\left(h^{2}+hf+f^{2}\right)}-\frac{1}{\left(h^{2}+hf+f^{2}\right)}$$$$=\frac{h-1\left(h-f\right)}{\left(h-f\right)\left(h^{2}+hf+f^{2}\right)}$$$$=\frac{h-h+f}{\left(h-f\right)\left(h^{2}+hf+f^{2}\right)}$$$$=\frac{f}{\left(h-f\right)\left(h^{2}+hf+f^{2}\right)}$$ | 10. | $$=\left(\frac{3+3\left(2x+1\right)}{2x+1}\right)\left(\frac{2\left(x+1\right)-1}{x+1}\right)$$$$=\left(\frac{3+6x+3}{2x+1}\right)\left(\frac{2x+2-1}{x+1}\right)$$$$=\left(\frac{6x+6}{2x+1}\right)\left(\frac{2x+1}{x+1}\right)$$$$=\left(\frac{6\left(x+1\right)}{2x+1}\right)\left(\frac{2x+1}{x+1}\right)$$= 6 |
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| 11. | $$=\frac{\left(x-2\right)\left(x+2\right)}{4}×\frac{1}{x-2}+\frac{x-2}{3}$$$$=\frac{\left(x+2\right)}{4}+\frac{x-2}{3}$$$$=\frac{3\left(x+2\right)+4\left(x-2\right)}{12}$$$$=\frac{3x+6+4x-8}{12}$$$$=\frac{7x-2}{12}$$ | 12. | $$=\left(\frac{a^{2}-b^{2}}{a-b}\right)÷\left(\frac{a+b}{\left(a-b\right)\left(a-b\right)}\right)$$$$=\left(\frac{\left(a-b\right)\left(a+b\right)}{a-b}\right)×\left(\frac{\left(a-b\right)\left(a-b\right)}{a+b}\right)$$$$=\left(\frac{1}{1}\right)×\left(\frac{\left(a-b\right)\left(a-b\right)}{1}\right)$$$$=\left(a-b\right)^{2}$$ |