Elementary Algebra
Chapter 1 Test Review Key

These are the different problem types you should feel comfortable with for the test.

1. Combine numbers:

$5-(-2)-(+4)-(-3)$	$7-(+1)-(-3)-(-2)$
$5-(-2)-(+4)-(-3)$ $=5+2-4+3$ $=7-4+3$ $=3+3$ $=6$	$7-(+1)-(-3)-(-2)$ $=7-1+3+2$ $=6+3+2$ $=9+2$ $=11$

2. Find the sum or difference

$\frac{-5}{6}+\frac{1}{8}$ $\frac{-5}{6}+\frac{1}{8}$ $=\frac{-5\cdot 4}{24}+\frac{1\cdot 3}{24}$ $=\frac{-20}{24}+\frac{3}{24}$ $=\frac{-17}{24}$	$\frac{5}{12}-\frac{7}{9}$ $\frac{5}{12}-\frac{7}{9}$ $=\frac{5\cdot 3}{36}-\frac{7\cdot 4}{36}$ $=\frac{15}{36}-\frac{28}{36}$ $=\frac{-13}{36}$
$5-\frac{1}{3}$ $5-\frac{1}{3}$ $=\frac{5}{1}-\frac{1}{3}$ $=\frac{5\cdot 3}{3}-\frac{1}{3}$ $=\frac{15}{3}-\frac{1}{3}$ $=\frac{14}{3}$	$\frac{1}{4}-3$ $\frac{1}{4}-3$ $=\frac{1}{4}-\frac{3}{1}$ $=\frac{1}{4}-\frac{3\cdot 4}{4}$ $=\frac{1}{4}-\frac{12}{4}$ $=\frac{-11}{4}$

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3. Multiply and Divide Fractions:

$\frac{8}{12}\cdot\frac{9}{20}$ $\frac{8}{12}\cdot\frac{9}{20}$ $=\frac{8}{4}\cdot\frac{3}{20}$ $=\frac{2}{4}\cdot\frac{3}{5}$ $=\frac{1}{2}\cdot\frac{3}{5}$ $=\frac{3}{10}$	$\frac{8}{15}\div\frac{16}{12}$ $\frac{8}{15}\div\frac{16}{12}$ $=\frac{8}{15}\cdot\frac{12}{16}$ $=\frac{1}{15}\cdot\frac{12}{2}$ $=\frac{1}{15}\cdot\frac{6}{1}$ $=\frac{1}{5}\cdot\frac{2}{1}$ $=\frac{2}{5}$
$\frac{40}{30}\div\frac{12}{15}$ $\frac{40}{30}\div\frac{12}{15}$ $=\frac{40}{30}\cdot\frac{15}{12}$ $=\frac{4}{3}\cdot\frac{15}{12}$ $=\frac{1}{3}\cdot\frac{15}{3}$ $=\frac{1}{1}\cdot\frac{5}{3}$ $=\frac{5}{3}$	$\frac{15}{12}\cdot 30$ $\frac{15}{12}\cdot 30$ $=\frac{15}{12}\cdot\frac{30}{1}$ $=\frac{5}{4}\cdot\frac{30}{1}$ $=\frac{5}{2}\cdot\frac{15}{1}$ $=\frac{75}{2}$

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4. Use order of operations to evaluate:

Evaluate: $2^4 \div 8 \cdot 2 + (-1)^2$ $2^4 \div 8 \cdot 2 + (-1)^2$ $= 16 \div 8 \cdot 2 + (-1)^2$ $= 16 \div 8 \cdot 2 + 1$ $= 2 \cdot 2 + 1$ $= 4 + 1$ $= 5$	Evaluate: $\dfrac{6(-2) - 3^2}{10 - 3(-2+5)^2 + 3}$ $\dfrac{6(-2) - 3^2}{10 - 3(-2+5)^2 + 3}$ $= \dfrac{6(-2) - 9}{10 - 3(3)^2 + 3}$ $= \dfrac{-12 - 9}{10 - 3(9) + 3}$ $= \dfrac{-21}{10 - 27 + 3}$ $= \dfrac{-21}{-17 + 3}$ $= \dfrac{-21}{-14}$ $= \dfrac{3}{2}$
Evaluate: $3 - 2[4^2 - 5(2+4)]$ $3 - 2[4^2 - 5(2+4)]$ $= 3 - 2[4^2 - 5(6)]$ $= 3 - 2[16 - 5(6)]$ $= 3 - 2[16 - 30]$ $= 3 - 2[-14]$ $= 3 + 28$ $= 31$	

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5. Simplify algebraic expressions:

Simplify: $7-(-3x+4)-2(8x-3)$ $7-(-3x+4)-2(8x-3)$ $=7+3x-4-16x+6$ $=3x-16x+7-4+6$ $=-13x+9$	Simplify: $-(7x+2)-3(4x-1)$ $-(7x+2)-3(4x-1)$ $=-7x-2-12x+3$ $=-7x-12x-2+3$ $=-19x+1$
Simplify: $-9(x+2)-3(x+4)$ $-9(x+2)-3(x+4)$ $=-9x-18-3x-12$ $=-9x-3x-18-12$ $=-12x-30$	