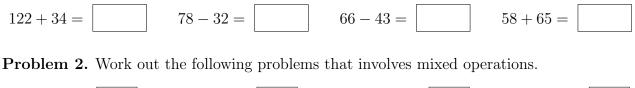# ACES Math: Mental Math II - Placement Test

In 40 minutes, please try to work out as many problems as possible. This test is only used to help us place you in the right class that fits the level of your mathematical maturity.
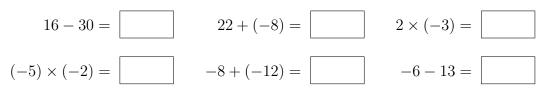
Calculators are NOT allowed in this test. Cheating sheets are NOT allowed either. For each problem in the test, please try to write down every major step of your reasoning/calculation. Please try to keep your exam clean.

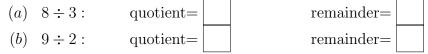**Problem 1.** Work out the following problems carefully.

$122 + 34 =$ ☐ $78 - 32 =$ ☐ $66 - 43 =$ ☐ $58 + 65 =$ ☐

Problem 2. Work out the following problems that involves mixed operations.

$2 + 3 \times 4 =$ ☐ $6 - 2 \times 2 =$ ☐ $3 \times (2 + 2) =$ ☐ $8 - 4 \div 2 =$ ☐

Problem 3. Work out the following problems that involves negative numbers.

$16 - 30 =$ ☐ $22 + (-8) =$ ☐ $2 \times (-3) =$ ☐

$(-5) \times (-2) =$ ☐ $-8 + (-12) =$ ☐ $-6 - 13 =$ ☐

Problem 4. Identify the quotient and the remainder in each of the following division operations.

(a) $8 \div 3 :$ quotient=☐   remainder=☐
(b) $9 \div 2 :$ quotient=☐   remainder=☐

Problem 5. Find the greatest common factors of the following pairs of integers.

(a) 6 and 8:

(b) 3 and 9:

Problem 6. Work out this following addition problems related to fractions carefully.

$$\frac{2}{10} + \frac{1}{5} = \frac{\Box}{\Box}, \qquad \frac{2}{3} - \frac{1}{6} = \frac{\Box}{\Box}, \qquad \frac{3}{4} + \frac{2}{8} = \frac{\Box}{\Box}, \qquad \frac{4}{5} - \frac{3}{10} = \frac{\Box}{\Box}$$