Getting Ready For Grade 10
M I X E D   R E V I E W

Complete each question on a separate piece of paper and show all steps of your work.

1. Evaluate.

   a. $\dfrac{5}{-7} - \dfrac{-2}{3}$

   b. $-2\dfrac{3}{11} - 4\dfrac{2}{9}$

   c. $2\dfrac{2}{5} \times \left(1\dfrac{3}{4} - 3\dfrac{1}{2}\right)$

   d. $\left(\dfrac{-3}{4}\right)\left(\dfrac{4}{-5}\right) \div \dfrac{3}{8}$

   e. -5^2

   f. $\dfrac{\left(4^{-3}\right)\left(4^5\right)}{4^2}$

   g. $\dfrac{\left(10^3\right)^{-2}}{\left(10^{-2}\right)^4}$

   h. 2^{-5}

   i. $5^0 + \left(\dfrac{1}{3}\right)^3 - \left(\dfrac{1}{3}\right)^{-3}$

   j. $x^a + y^a$ when $x = \dfrac{2}{3}, \; y = \dfrac{3}{4}, \; a = -1$

2. Simplify.

   a. $\left(m^5\right)\left(m^{-3}\right)$

   b. $\dfrac{y^{16}}{y^4}$

   c. $\left(10x^2\right)^{-3}$

   d. $\left(x^4 y^5\right)\left(x^3 y^4\right)$

   e. $\dfrac{-30ab}{-6}$

   f. $\dfrac{20x^2 y^4 - 15x^5 y^2 + 30x^3 y^4}{10x^2 y^2}$

   g. $\dfrac{20r^{20}s^{15}}{5r^5 s^3}$

   h. $5\left(3x^2 + 5x - 7\right) - 2\left(4x^2 - 3x + 5\right)$

   i. $\left(-5m^2 n^3\right)\left(4m^3 n^2\right)$

   j. $3x^2\left(4x^2 - 7x\right) - 5x^2\left(3x^2 - 2x\right)$

3. Given the line with equation $y = -\dfrac{3}{4}x - 3$.

   a. State the x-intercept.
   b. State the y-intercept.
   c. Graph the line.
   d. What is the slope of the line?

4. Solve and check.

   a. $5x + 3 = 13$

   b. $2 - 4x = 6x + 12$

   c. $8(4x - 2) = 48$

   d. $2(3x - 6) = 5(4 - x)$

   e. $\dfrac{2x+3}{4} = \dfrac{x+5}{6}$

   f. $\dfrac{1}{2}(6x - 2) - \dfrac{3}{4}(8x + 12) = 5$

Getting Ready For Grade 10
MIXED REVIEW

Complete each question on a separate piece of paper and show all steps of your work.

1. Evaluate.
   neg. a. $\frac{5}{-7}\left(\frac{-2}{3}\right)$ — change to improper, neg up
   b. $-2\frac{3}{11} - 4\frac{2}{9}$
   c. $2\frac{2}{5} \times \left(\frac{3}{4} - 3\frac{1}{2}\right)$
   d. $\left(\frac{-3}{4}\right)\left(\frac{4}{-5}\right) \div \frac{3}{8}$ — mult. across
   e. -5^2
   f. $\frac{(4^{-3})(4^5)}{4^2}$ → add exponents
   g. $\frac{(10^3)^{-2}}{(10^{-2})^4}$
   h. 2^{-5}
   i. $\left(5^0\right)\left(\frac{1}{3}\right)^3 - \left(\frac{1}{3}\right)^{-3}$ = 1, flip
   j. $x^a + y^a$ when $x = \frac{2}{3}, y = \frac{3}{4}, a = -1$

2. Simplify.
   a. $(m^5)(m^{-3})$
   b. $\frac{y^{16}}{y^4}$
   c. $(10x^2)^{-3}$ → flip
   d. $(x^4y^5)(x^3y^4)$
   e. $\frac{-30ab}{-6}$
   f. $\frac{20x^2y^4 - 15x^5y^2 + 30x^3y^4}{10x^2y^2}$ → distribute divisor
   g. $\frac{20r^{20}s^{15}}{5r^5s^3}$
   h. $5(3x^2 + 5x - 7) - 2(4x^2 - 3x + 5)$
   i. $(-5m^2n^3)(4m^3n^2)$
   j. $3x^2(4x^2 - 7x) - 5x^2(3x^2 - 2x)$

3. Given the line with equation $y = -\frac{3}{4}x - 3$.
   a. State the x-intercept.
   b. State the y-intercept.
   c. Graph the line.
   d. What is the slope of the line?

4. Solve and check.
   a. $5x + 3 = 13$
   b. $2 - 4x = 6x + 12$
   c. $8(4x - 2) = 48$
   d. $2(3x - 6) = 5(4 - x)$
   e. $\frac{2x+3}{4} = \frac{x+5}{6}$
   f. $\frac{1}{2}(6x - 2) - \frac{3}{4}(8x + 12) = 5$

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1 ⓐ $\frac{-5 \times 3}{7 \times 3} + \frac{2 \times 7}{3 \times 7}$

$= \frac{-15}{21} + \frac{14}{21}$

$= \frac{-1}{21}$

ⓑ $\frac{-25 \times 9}{11 \times 9} - \frac{38 \times 11}{9 \times 11}$

$= \frac{-225}{99} - \frac{418}{99}$

$= \frac{-643}{99}$

ⓒ $\frac{12}{5} \times \left(\frac{7}{4} - \frac{7 \times 2}{2 \times 2}\right)$

$= \frac{12}{5} \times \left(\frac{7}{4} - \frac{14}{4}\right)$

$= \frac{12}{5}^{3} \times \left(\frac{-7}{4_1}\right)$

$= \frac{-21}{5}$

ⓓ $\left(\frac{-12}{-20}\right) \div \frac{3}{8}$

$= \left(\frac{3}{5}\right) \div \frac{3}{8}$

$= \frac{3^1}{5} \times \frac{8}{3_1}$

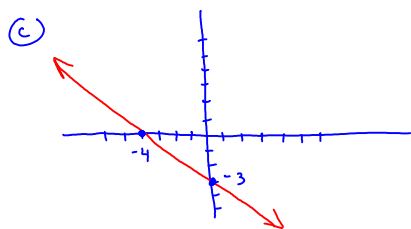$= \frac{8}{5}$

ⓔ -5^2

$= -25$

ⓕ $\frac{4^2}{4^2} = 4^0 = 1$

ⓖ $\frac{10^{-6}}{10^{-8}} = 10^{-6-(-8)}$ — subtract exponents

$= 10^2$

$= 100$

ⓗ 2^{-5}

$= \frac{1}{2^5} = \frac{1}{32}$

ⓘ $1 + \frac{1^3}{3^3} - \left(\frac{3}{1}\right)^3$

$= 1 + \frac{1}{27} - 27$

$= \frac{-26 \times 27}{1 \times 27} + \frac{1}{27}$

$= \frac{-702}{27} + \frac{1}{27}$

$= \frac{-701}{27}$

ⓙ $\left(\frac{2}{3}\right)^{-1} + \left(\frac{3}{4}\right)^{-1}$ — flip + make positive exponent

$= \left(\frac{3}{2 \times 3}\right)^1 + \left(\frac{4}{3 \times 2}\right)^1$

$= \frac{9}{6} + \frac{8}{6} = \frac{17}{6}$

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2 ⓐ m^2 ⓑ y^{12} ⓒ $\left(\frac{1}{10x^2}\right)^3 = \frac{1}{10^3x^6} = \frac{1}{1000x^6}$

ⓓ x^7y^9 ⓔ $5ab$

ⓕ $\frac{20x^2y^4}{10x^2y^2} - \frac{15x^5y^2}{10x^2y^2} + \frac{30x^3y^4}{10x^2y^2}$

$= 2x^0y^2 - \frac{3}{2}x^3y^0 + 3xy^2$

$= 2y^2 - \frac{3}{2}x^3 + 3xy^2$

ⓖ $4r^{15}s^{12}$

ⓗ $15x^2 + 25x - 35 - 8x^2 + 6x - 10$

$= 7x^2 + 31x - 45$

ⓘ $-20m^5n^5$

ⓙ $12x^4 - 21x^3 - 15x^4 + 10x^3$

$= -3x^4 - 11x^3$

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3 ⓐ x-int of $y = -\frac{3}{4}x - 3$ — sub y=0

$0 = -\frac{3}{4}x - 3$

$4 \times 3 = -\frac{3x}{4} \quad \times 4$

$12 = -3x$

$-4 = x \qquad \therefore$ x-int $(-4, 0)$

ⓑ y-int

(b) <u>y-int</u> sub x=0 $y = -\frac{3}{4}(0) - 3$

$y = -3$ ∴ y-int $(0,-3)$

(c)

(d) slope $m = -\frac{3}{4}$

4. (a) $5x + 3 = 13$ -3

$5x = 10$

$5 = 2$

(b) $2(-4x) = 6x(+12)$

$2 - 12 = 6x + 4x$

$-10 = 10x$

$-1 = x$

(c) $8(4x - 2) = 48$

$32x - 16 = 48$

$32x = 48 + 16$

$32x = 64$

$x = 2$

(d) $2(3x-6) = 5(4-x)$

$6x - 12 = 20 - 5x$

$6x + 5x = 20 + 12$

$11x = 32$

$x = \frac{32}{11}$

(e) $12 \times \frac{(2x+3)}{4} = 12 \times \frac{(x+5)}{6}$

$3(2x+3) = 2(x+5)$

$6x + 9 = 2x + 10$

$6x - 2x = -9 + 10$

$4x = +1$

$x = \frac{1}{4}$

(f) $4 \times \frac{1}{2}(6x-2) \; \frac{4 \times 3}{4}(8x+12) = 5 \times 4$

$2(6x-2) - 3(8x+12) = 20$

$12x - 4 - 24x - 36 = 20$

$-12x - 40 = 20$ $+40$

$-12x = 60$

$x = 5$