

Before we begin, are there any questions from last day's work?

p. 533 #1 - 5

pp. 534-535 #1ad, 2ad, 3cd, 4bc, 6

Bring/buy Graph Paper for next class.

Practising

1. Evaluate to three decimal places where necessary.

- a) 4^2 c) 3^2 e) $(-5)^3$
 b) 5^0 d) -3^2 f) $(\frac{1}{2})^3$

2. Evaluate.

- a) $3^0 + 5^0$ d) $(\frac{1}{2})^3 (\frac{2}{3})^2$
 b) $2^2 + 3^3$ e) $-2^5 + 2^4$
 c) $5^2 - 4^2$ f) $(\frac{1}{2})^2 + (\frac{1}{3})^2$

3. Evaluate to an exact answer.

- a) $\frac{9^8}{9^7} = 9^{8-7} = 9^1 = 9$
 b) $\frac{2(5^5)}{5^3} = 2 \cdot 5^{5-3} = 2 \cdot 5^2 = 2 \cdot 25 = 50$
 c) $(4^5)(4^2)^3 = 4^5 \cdot 4^{2 \cdot 3} = 4^5 \cdot 4^6 = 4^{5+6} = 4^{11}$
 d) $\frac{(3^2)(3^3)}{(3^4)^2} = \frac{3^2 \cdot 3^3}{3^8} = \frac{3^{2+3}}{3^8} = \frac{3^5}{3^8} = 3^{5-8} = 3^{-3} = \frac{1}{3^3} = \frac{1}{27}$

4. Simplify.

- a) $(x^5)(x^3) = x^{5+3} = x^8$
 b) $(m^2)(m^4)(m^3) = m^{2+4+3} = m^9$
 c) $(y^5)(y^2) = y^{5+2} = y^7$
 d) $(a^b)^c = a^{b \cdot c} = a^{2 \cdot 4 \cdot 3} = a^{24}$
 e) $\frac{(x^5)(x^3)}{x^2} = \frac{x^{5+3}}{x^2} = \frac{x^8}{x^2} = x^{8-2} = x^6$
 f) $(\frac{x^4}{y^3})^3 = \frac{x^{4 \cdot 3}}{y^{3 \cdot 3}} = \frac{x^{12}}{y^9}$

5. Simplify.

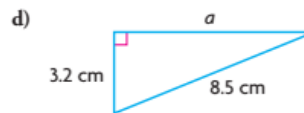
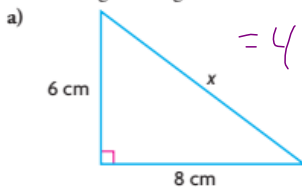
- a) $(x^2y^4)(x^3y^2) = x^{2+3}y^{4+2} = x^5y^6$
 b) $(-2m^3)^2(3m^2)^3 = (-2)^2(m^3)^2(3)^3(m^2)^3 = 4m^6(27)m^6 = 108m^{12}$
 c) $\frac{(5x^2)^2}{(5x^2)^0} = \frac{25x^4}{1} = 25x^4$
 d) $(4u^3v^2)^2 \div (-2u^2v^3)^2 = \frac{16u^6v^4}{4u^4v^6} = \frac{4u^2v^4}{v^6} = \frac{4u^2}{v^2}$

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Appendix A: Review of Essential Skills and Knowledge 533

Practising

1. For each right triangle, write the equation for the Pythagorean theorem.

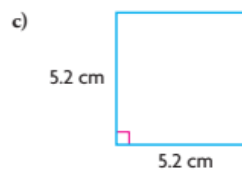
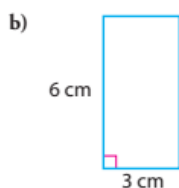
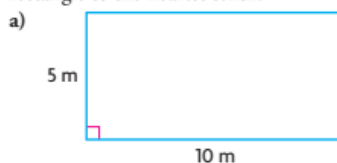


2. Calculate the length of the unknown side of each triangle in question 1. Round all answers to one decimal place.

3. Find the value of each unknown measure to the nearest hundredth.

- a) $a^2 = 5^2 + 13^2$
 b) $10^2 = 8^2 + m^2$
 c) $26^2 = b^2 + 12^2$
 d) $2.3^2 + 4.7^2 = c^2$

4. Determine the length of the diagonals of each rectangle to the nearest tenth.



5. An isosceles triangle has a hypotenuse 15 cm long. Determine the length of the two equal sides.

6. An apartment building casts a shadow. From the tip of the shadow to the top of the building is 100 m. The tip of the shadow is 72 m from the base of the building. How tall is the building?

Reminders:

Sign and **RETURN** the cover sheet with email address PRINTED.

Textbooks scanned at the Library

Homework Check...coming soon.

Keep up with the work or come for help.

Please clear off and *separate* your desks. Put your calculator *on the floor*.

No calculators allowed today!

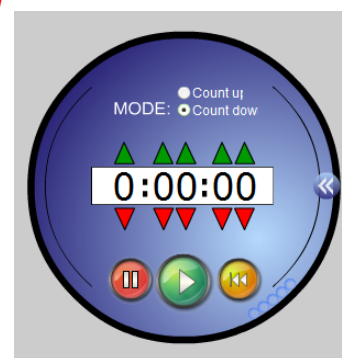
Time for: CheckPoint 1.1



First & Last Name:

Amount of homework completed

none/almost none	<input type="checkbox"/>	half or less	<input type="checkbox"/>	more than half	<input type="checkbox"/>	all	<input type="checkbox"/>
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Today's Learning Goal(s):

By the end of the class, I will be able to:

- substitute into (and evaluate) algebraic expressions and formulas.
- expand and simplify algebraic expressions.

MCF 3MI

Simplifying Algebraic Expressions Review

Date: Sept 6/19
(Every lesson)

Ex. 1 Determine the value of $-3x^2 - y$, if $x = -2$ and $y = -5$.

$$\begin{aligned} &= -3(-2)^2 - (-5) \\ &= -3(4) + 5 \\ &= -12 + 5 \\ &= -7 \end{aligned}$$

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Ex. 2 The area of a circle is found using the formula $A = \pi r^2$.

Find the area of a circle with a radius of 3.8 m.

(Round your **final** answer to 3 decimal places.)

$$\begin{aligned} A &= \pi r^2 \\ &= \pi (3.8)^2 \\ &\doteq 45.3645 \\ &\doteq 45.365 \text{ m}^2 \end{aligned}$$

45.365 m²

To simplify an expression, you have to use your algebra rules to make the expression as simple as possible.

To do this, you must collect like terms, use the distributive property or FOIL.

Ex. 3: Simplify the following.

$$\begin{aligned} \text{a) } & 4x - 5y - 3y - 9x \\ & \underline{\quad \quad \quad \quad \quad} \\ & = -5x - 8y \end{aligned}$$

$$\begin{aligned} \text{b) } & (4x - 7y) - (2y + 3x) \\ & = 4x - 7y - 2y - 3x \\ & \underline{\quad \quad \quad \quad \quad} \\ & = x - 9y \end{aligned}$$

$$\begin{aligned} \text{c) } & -4a(2a - 3b) \\ & \underline{\quad \quad \quad \quad \quad} \\ & = -8a^2 + 12ab \end{aligned}$$

$$\begin{aligned} \text{d) } & 8(2m - 3) + 3m(5m - 1) \\ & = 16m - 24 + 15m^2 - 3m \\ & \underline{\quad \quad \quad \quad \quad} \\ & = 15m^2 + 13m - 24 \end{aligned}$$

$$\begin{aligned} \text{e) } & (3x - 7)(4x + 9) \\ & = 12x^2 + 27x - 28x - 63 \\ & \underline{\quad \quad \quad \quad \quad} \\ & = 12x^2 - x - 63 \end{aligned}$$

$$\begin{aligned} \text{f) } & (2x^2 - 3)(5x^2 + 2) \\ & = 10x^4 + 4x^2 - 15x^2 - 6 \\ & \underline{\quad \quad \quad \quad \quad} \\ & = 10x^4 - 11x^2 - 6 \end{aligned}$$

$$\begin{aligned} \text{g) } & x^2y^4(3xy^2 - 4x^3y^2) \\ & = 3x^{2+1}y^{4+2} - 4x^{2+3}y^{4+2} \\ & = 3x^3y^6 - 4x^5y^6 \end{aligned}$$

Reminders:

Textbooks scanned at the Library

Today's Homework Practice :

p. 536 #1ac, 2bd, 3abd

p. 543 #1bcd, 2bd, 3c, 4

Bring Graph Paper for next class.

Practising

- Find the value of each expression for $x = -5$ and $y = -4$.
 - $-4x - 2y$
 - $-3x - 2y^2$
 - $(3x - 4y)^2$
 - $\left(\frac{x}{y}\right) - \left(\frac{y}{x}\right)$
- If $x = -\frac{1}{2}$ and $y = \frac{2}{3}$, find the value of each expression.

a) $x + y$	c) $3x - 2y$
b) $x + 2y$	d) $\frac{1}{2}x - \frac{1}{2}y$
- The formula for the area of a triangle is $A = \frac{1}{2}bh$. Find the area of a triangle when $b = 13.5$ cm and $h = 12.2$ cm.
 - The area of a circle is found using the formula $A = \pi r^2$. Find the area of a circle with a radius of 4.3 m.
 - The hypotenuse of a right triangle, c , is found using the formula $c = \sqrt{a^2 + b^2}$. Find the length of the hypotenuse when $a = 6$ m and $b = 8$ m.
 - A sphere's volume is calculated using the formula $V = \frac{4}{3}\pi r^3$. Determine the volume of a sphere with a radius of 10.5 cm.