

Incoming 8th Grade Summer Math Skills Review

Welcome incoming students! This packet will help you retain the skills you learned in 7th grade so we can continue to build on these when you return in August!

** If you are struggling with any of the skills in this packet, please search for the skill topic (written in blue) on the Khan Academy website: <https://www.khanacademy.org/> or the Virtual Nerd website: <http://virtualnerd.com/pre-algebra/all/> You can also get extra practice on each skill from the IXL website: IXL.com. You can complete 10 questions a day without a membership.

We look forward to meeting you in August!

INTEGERS (extra practice: IXL.com → 8th grade C.3 add and subtract and C.7 multiply and divide)

Addition:

SAME SIGNS: ADD and keep the same sign.

DIFFERENT SIGNS: SUBTRACT the smaller from the larger give the answer the sign of the larger number.

Subtraction:

ADD the opposite for the second number and use the Addition Rule. (ex: $-6 - 3 = -6 + -3 = -9$)

Multiplication & Division

Product or Quotient of TWO **same signs** is **positive**.

Product or Quotient of TWO **different signs** is **negative**.

** You MUST know how to complete these problems WITHOUT a calculator! **

$(+4) + (-7) =$	$(-8) \div (+2) =$	$(-9) - (-9) =$
$(-3) - (+6) =$	$(+6) + (-9) =$	$(-7) + (+2) =$
$(-1) \times (+9) =$	$(-8) \times (-6) =$	$(+4) \div (-2) =$
$(+5) \div (-5) =$	$(+4) - (-1) =$	$(-6) \times (+2) =$
$(-8) + (-6) =$	$(+6) \div (+3) =$	$(+8) + (-6) =$

ROUNDING DECIMALS

(extra practice: IXL.com → 7th grade D.4, Round decimals)

- Round 8.54 to the nearest tenth
- Round 99.59 to the nearest whole number
- Round 310.286 to the nearest tenth
- Round 6.4 to the nearest whole number
- Round 6.805 to the nearest hundredth
- Round 9.765 to the nearest tenth
- Round 118.387 to the nearest hundredth
- Round 65.85 to the nearest whole number

ORDER OF OPERATIONS – perform the operations in the correct order. **SHOW ALL WORK!**
(extra practice: IXL.com → 8th grade, C.8: Evaluate numerical expressions involving integers)

1. $(-1)^3 \cdot 7 + 4 =$

5. $10 \div 2 \cdot 4 \div 5 =$

2. $(-6 + 8) \div -2 =$

6. $7 \cdot 3 + (2)^3 =$

3. $8 + 2 \cdot 6 - 5 =$

7. $11 + 8(6 - 3) =$

4. $9 - 4 + 2 - 1 + 8 =$

8. $12 + 4(8 \div 2) =$

SOLVE PROPORTIONS

SHOW ALL WORK (extra practice: IXL.com → 8th grade, J.9: Solve Proportions)

1. $\frac{10}{8} = \frac{n}{4}$

4. $\frac{6}{7} = \frac{3}{n}$

7. $\frac{8}{12} = \frac{6}{n}$

2. $\frac{9}{6} = \frac{n+4}{10}$

5. $\frac{10}{n} = \frac{4}{2}$

8. $\frac{n}{4} = \frac{11}{6}$

3. $\frac{4}{n+1} = \frac{8}{4}$

6. $\frac{30}{6} = \frac{n}{2}$

9. $\frac{n-3}{5} = \frac{12}{8}$

COORDINATE PLANE

(extra practice: IXL.com → 8th grade, P.1 Coordinate Plane Review)

Graph and label the following ordered pairs on the given coordinate plane.

Point A (5, 1)

Point B (-3, -8)

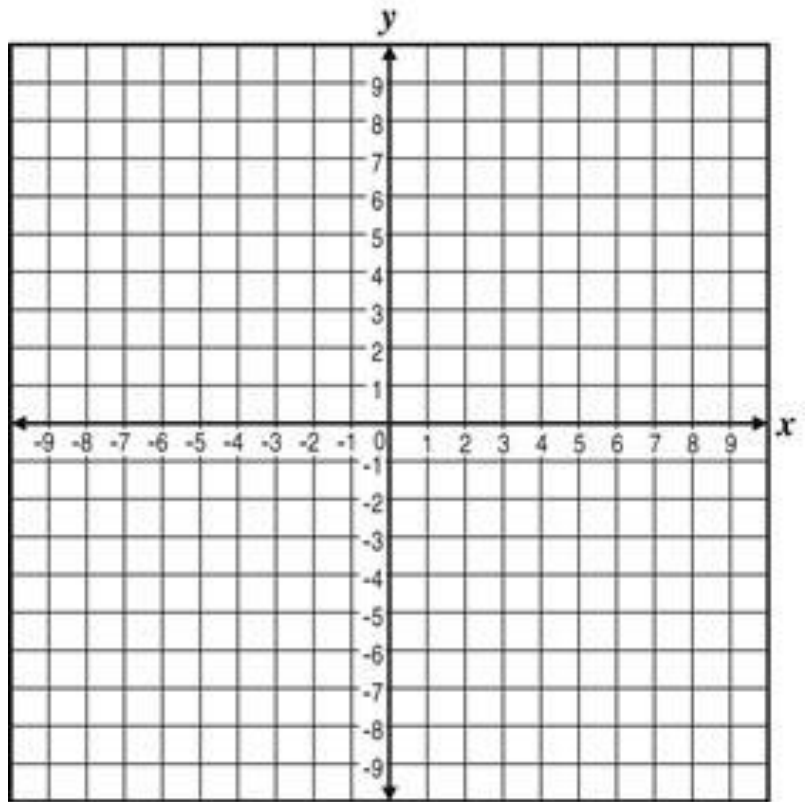
Point C (0, 6)

Point D (-7, 2)

Point E (9, 0)

Point F (4, -5)

Point G (-8, 0)



SOLVE EQUATIONS – solve for the variable. SHOW ALL WORK to earn credit.

(extra practice: IXL.com → 8th grade, Y.7, Y.8, Y.11, Y.12)

1. $x - 4 = 1$

6. $5x - x + 4x = 24$

2. $3x = 15$

7. $3x + 6x - 7 = 10$

3. $\frac{x}{2} = 9$

8. $16 + 5x = 8x - 5$

4. $-3x + 9 = -6$

5. $\frac{x}{2} - 10 = 3$

Big25 Study Guide (with resources)

Question(s)	Skill	Resources
1, 2	Integer Operations	https://www.thatquiz.org/tq-1/?-j4h03-la-n35-p0 - That quiz (Adding & Subtracting) https://www.thatquiz.org/tq-1/?-j4h0c-la-n35-p0 - That Quiz (Multiplying & Dividing) https://www.thatquiz.org/tq-1/?-j4h0f-la-n35-p0 - That Quiz (All Operations) <ul style="list-style-type: none"> IXL: 8th grade - C.3 Add and Subtract Integers IXL: 8th grade – C.7 Multiply and Divide Integers
3, 4	Rounding Decimals	https://www.thatquiz.org/tq-c/?-jg080-l4-n35-p0 (that quiz – rounding) <ul style="list-style-type: none"> IXL: 6th Grade – F.7 Round Decimals
5	Simplify Fractions	<ul style="list-style-type: none"> https://www.thatquiz.org/tq-e/?-j1-la-n35-p0 (that quiz – simplify) • IXL: 6th grade – I.3 write fraction in lowest terms
6	Solve proportions	<ul style="list-style-type: none"> https://www.thatquiz.org/tq-e/?-jg-l7-n35-p0 (that quiz – solve for x) • IXL: 7th grade – J.9 Solve Proportions
7, 8, 9	Solve equations	https://www.thatquiz.org/tq-0/?-j102-l2-n35-p0 (that quiz – one and two step equations) <ul style="list-style-type: none"> http://www.aaamath.com/ad28.htm (AAA - solve two step) • IXL: 7th grade – S.5 Solve one step equations IXL: 7th grade – S.6 Solve two step equations IXL: 7th grade - S.8 solve equations involving like terms
10	Evaluate functions	<ul style="list-style-type: none"> https://www.thatquiz.org/tq-0/?-j100-l4-n35-p0 (that quiz – evaluate) • http://www.aaamath.com/ad22.htm (evaluate expression) • IXL: 7th grade – R.3 evaluate linear expressions
11	Distributive Property	https://www.thatquiz.org/tq-0/?-j104-l2-n35-p0 (that quiz – distributive property) <ul style="list-style-type: none"> IXL: 7th grade – R.9 Distributive Property
12	Radicals	https://www.thatquiz.org/tq-2/?-j12-l2-n35-p0 (That quiz – simplify radicals) <ul style="list-style-type: none"> IXL: 6th grade – D.10 square roots of perfect squares
13, 14	Combine Like Terms	https://www.thatquiz.org/tq-0/?-j104-l1-n35-p0 (that quiz – like terms with the same variable) <ul style="list-style-type: none"> IXL: 7th grade – R.12 Add and Subtract Like Terms

15	Simplify Exponents	https://www.thatquiz.org/tq-2/?-j1-l4-n35-p0 That quiz (positive exponents) https://www.thatquiz.org/tq-2/?-jg0-l4-n35-p0 That quiz (negative exponents) <ul style="list-style-type: none"> • IXL: 6th grade – D.2 Evaluate exponents • IXL: 6th grade – D.7 Evaluate negative exponents
16	Laws of Exponents	https://www.thatquiz.org/tq-2/?-i400-l4-n35-p0 Law #1 (multiply bases, add exponents) https://www.thatquiz.org/tq-2/?-j800-l4-n35-p0 Law #2 (divide bases, subtract exponents) https://www.thatquiz.org/tq-2/?-jg00-l4-n35-p0 Law #3 (power to a power, multiply exponents)
17, 18	Order of Operations	http://www.mathgoodies.com/lessons/vol7/order_operations.html (examples and practice questions) <ul style="list-style-type: none"> • IXL: 6th grade – O.11 perform multiple operations with integers • http://www.regentsprep.org/regents/math/algebra/aop2/orderPrac.htm (practice questions) <ul style="list-style-type: none"> • http://amby.com/educate/ord-op/pretest.html (practice questions)
19, 20	Scientific Notation	https://www.thatquiz.org/tq-c/?-j2g0-l4-n35-p0 (scientific to standard form) https://www.thatquiz.org/tq-c/?-j4g0-l5-n35-p0 (write in scientific notation)
21, 22	Slope intercept form	<ul style="list-style-type: none"> • IXL: 7th grade – V.4 find the slope from an equation • IXL: 8th grade – Y.7 Write a linear equation

23	Graphing ordered pairs	<ul style="list-style-type: none"> • https://www.thatquiz.org/tq-7/?-j104-l5-n35-p0 (that quiz – plot) • IXL: 7th grade – P.1 Coordinate Plane Review
24	Pythagorean Theorem	https://www.thatquiz.org/tq-A/?-j10-la-n35-p0 (find missing leg or hypotenuse of a right triangle) <ul style="list-style-type: none"> • IXL: 7th grade – Y.1 Pythagorean Theorem find hypotenuse • IXL: 7th grade – Y.2 Pythagorean Theorem find the missing leg length
25	Angle Measures	<ul style="list-style-type: none"> • https://www.thatquiz.org/tq-C/?-j2-l7-p0 (find angle measure) • IXL: Geometry – D.4 transversal of parallel lines