CAASPP Mathematics Practice

20 Core Questions — Print & Study Worksheet

Name: _____ Date: _____ Score: _____ / 20

Instructions: Read each question and the key concept. Answer all 3 steps. Write your answer letter on the blank line provided. Check your answers using the answer key (provided separately).

Question 1

Topic: Ratios & Proportions | Difficulty: ★ Easy

Key Concept:

A ratio compares two quantities. A proportion says two ratios are equal. To solve a proportion, cross-multiply. Unit rate = total / count.

Example:

If 3 apples cost $2.40, rate = $2.40 / 3 = $0.80/apple. For 5 apples: 5 x $0.80 = $4.00

A car travels 150 miles in 3 hours. Use the rate to answer each step.

Step 1 — What is the car's speed (unit rate)?

A. 40 mph
B. 50 mph
C. 45 mph
D. 60 mph

Your Answer: _____

Step 2 — At the same speed, how far will it travel in 5 hours?

A. 200 miles
B. 225 miles
C. 250 miles
D. 275 miles

Your Answer: _____

Step 3 — How long to go 375 miles at the same rate?

A. 6 hours
B. 7 hours
C. 7.5 hours
D. 8 hours

Your Answer: _____

Question 2

Topic: Fractions & Decimals | Difficulty: ★ Easy

Key Concept:

To multiply fractions: multiply numerators and denominators. To subtract fractions: find a common denominator first.

Example:

2/3 + 1/4 => LCD = 12 => 8/12 + 3/12 = 11/12

Maria has 3/4 of a pizza. She eats 1/3 of what she has.

Step 1 — How much pizza does Maria eat?

A. 1/4
B. 1/3
C. 1/6
D. 2/7
Your Answer: _____

Step 2 — How much pizza is left?

A. 1/3
B. 1/2
C. 5/12
D. 2/3
Your Answer: _____

Step 3 — What fraction of the ORIGINAL pizza did she eat?

A. 1/4
B. 1/3
C. 3/8
D. 1/2
Your Answer: _____

Question 3

Topic: Percentages | Difficulty: ★★ Medium

Key Concept:

Percent means per hundred. Discount = price x rate. Sale price = original - discount. Tax = sale price x tax rate.

Example:

A $40 shirt is 25% off: Discount = 40 x 0.25 = $10. Sale price = $40 - $10 = $30.

A jacket originally costs $80. It is on sale for 35% off. A 8% sales tax is applied to the sale price.

Step 1 — What is the discount amount?

A. $24
B. $28
C. $30
D. $35

Your Answer: _____

Step 2 — What is the sale price?

A. $48
B. $50
C. $52
D. $55

Your Answer: _____

Step 3 — What is the final cost after 8% tax on the sale price?

A. $55.00
B. $55.82
C. $56.16
D. $57.20

Your Answer: _____

Question 4

Topic: Integers & Operations | Difficulty: ★ Easy

Key Concept:

Adding negatives = subtracting. Different signs multiply to negative. Same signs multiply to positive.

Example:

(-5) + (-3) = -8. (-3)(+4) = -12. (-3)(-4) = +12.

Temperature at midnight is -8 degrees F. It drops 5 degrees by 3 AM, then rises 12 degrees by noon.

Step 1 — What is the temperature at 3 AM?

A. -3 F
B. -13 F
C. -15 F
D. 3 F

Your Answer: _____

Step 2 — What is the temperature at noon?

A. -1 F
B. 1 F
C. 4 F
D. -4 F

Your Answer: _____

Step 3 — What is the total change from midnight to noon?

A. +7 F
B. -7 F
C. +3 F
D. -3 F

Your Answer: _____

Question 5

Topic: Algebraic Expressions | Difficulty: ★★ Medium

Key Concept:

Like terms have the same variable and exponent. Distributive property: a(b+c) = ab + ac. Combine like terms after distributing.

Example:

Simplify: 2(3x + 4) - 5x = 6x + 8 - 5x = x + 8

Simplify and evaluate algebraic expressions.

Step 1 — Simplify: 4(2x - 3) + 5x

A. 13x - 12

B. 13x - 3

C. 8x - 12

D. 8x + 2

Your Answer: _____

Step 2 — If x = 3, evaluate 13x - 12.

A. 25

B. 27

C. 33

D. 30

Your Answer: _____

Step 3 — Simplify: 6x^2 + 9x - 3x^2 + 2

A. 3x^2 + 9x + 2

B. 9x^2 + 9x + 2

C. 3x^2 + 2

D. 6x^2 + 11x

Your Answer: _____

Question 6

Topic: Solving Equations | Difficulty: ★★ Medium

Key Concept:

Isolate the variable using inverse operations. Do the same to both sides. Always check your answer.

Example:

Solve 3x + 5 = 20 => 3x = 15 => x = 5. Check: 3(5)+5 = 20. Correct!

Solve the following multi-step equations.

Step 1 — Solve: 2x + 7 = 19

A. x = 5
B. x = 6
C. x = 7
D. x = 13
Your Answer: _____

Step 2 — Solve: 5(x - 2) = 25

A. x = 3
B. x = 5
C. x = 7
D. x = 9
Your Answer: _____

Step 3 — Solve: 3x - 4 = 2x + 9

A. x = 5
B. x = 11
C. x = 13
D. x = 6
Your Answer: _____

Question 7

Topic: Inequalities | Difficulty: ★★ Medium

Key Concept:

Solve like equations, BUT flip the inequality sign when multiplying or dividing by a NEGATIVE number.

Example:

Solve -3x + 1 >= 7 => -3x >= 6 => x <= -2 (flip because divided by -3).

Solve and interpret the following inequalities.

Step 1 — Solve: 4x - 3 > 9

A. x > 2

B. x > 3

C. x > 4

D. x > 1.5

Your Answer: _____

Step 2 — Solve: -2x + 5 <= 11

A. x <= -3

B. x >= -3

C. x <= 3

D. x >= 3

Your Answer: _____

Step 3 — Which number is NOT a solution to 3x + 1 < 10?

A. x = 1

B. x = 2

C. x = 3

D. x = 0

Your Answer: _____

Question 8

Topic: Linear Functions & Slope | Difficulty: ★★ Medium

Key Concept:

y = mx + b: m is slope (rise/run), b is y-intercept. Slope = (y2 - y1)/(x2 - x1). Parallel lines have equal slopes.

Example:

Through (2,3) and (4,7): slope = (7-3)/(4-2) = 4/2 = 2. Equation: y = 2x - 1.

Analyze linear functions and their properties.

Step 1 — Find the slope through (1, 2) and (4, 8).

A. m = 1

B. m = 2

C. m = 3

D. m = 4

Your Answer: _____

Step 2 — In y = 2x + 3, what is the y-intercept?

A. 2

B. 3

C. -3

D. 1

Your Answer: _____

Step 3 — Which line is parallel to y = 2x - 5?

A. y = -2x + 1

B. y = 2x + 7

C. y = 0.5x - 5

D. y = -0.5x + 3

Your Answer: _____

Question 9

Topic: Geometry: Area & Perimeter | Difficulty: ★ Easy

Key Concept:

Rectangle: A = lw, P = 2(l+w). Triangle: A = (1/2)bh. Circle: A = pi*r^2. Always use correct units.

Example:

Rectangle 8m x 5m: A = 40 m^2. P = 2(8+5) = 26 m.

A triangle has base 10 cm, height 6 cm. A circle has radius 7 cm. A rectangle has area 72 m^2 and length 9 m.

Step 1 — What is the area of the triangle?

A. 30 cm^2
B. 60 cm^2
C. 32 cm^2
D. 45 cm^2
Your Answer: _____

Step 2 — What is the area of the circle? (pi = 3.14)

A. 43.96 cm^2
B. 153.86 cm^2
C. 21.98 cm^2
D. 314 cm^2
Your Answer: _____

Step 3 — Find the perimeter of the rectangle.

A. 30 m
B. 34 m
C. 38 m
D. 42 m
Your Answer: _____

Question 10

Topic: Volume & Surface Area | Difficulty: ★★ Medium

Key Concept:

Rectangular prism: V = l*w*h, SA = 2(lw + lh + wh). Cylinder: V = pi*r^2*h. Volume in cubic units, SA in square units.

Example:

Box 4x3x2: V = 24 cm^3. SA = 2(12+8+6) = 52 cm^2.

A rectangular box is 6 cm long, 4 cm wide, 3 cm tall. A cylinder has radius 3 cm, height 10 cm.

Step 1 — What is the volume of the box?

A. 60 cm^3
B. 72 cm^3
C. 54 cm^3
D. 36 cm^3
Your Answer: _____

Step 2 — What is the surface area of the box?

A. 96 cm^2
B. 108 cm^2
C. 120 cm^2
D. 72 cm^2
Your Answer: _____

Step 3 — What is the volume of the cylinder? (pi = 3.14)

A. 188.4 cm^3
B. 282.6 cm^3
C. 94.2 cm^3
D. 376.8 cm^3
Your Answer: _____

Question 11

Topic: Pythagorean Theorem | Difficulty: ★★ Medium

Key Concept:

In a right triangle: a^2 + b^2 = c^2, where c is the hypotenuse (opposite the right angle).

Example:

Legs 3 and 4: c^2 = 9 + 16 = 25 => c = 5. Common triples: 3-4-5, 5-12-13.

Apply the Pythagorean Theorem to right triangles.

Step 1 — Right triangle with legs 6 and 8. Find the hypotenuse.

A. 9
B. 10
C. 12
D. 14
Your Answer: _____

Step 2 — Hypotenuse = 13, one leg = 5. Find the other leg.

A. 10
B. 11
C. 12
D. 8
Your Answer: _____

Step 3 — Is a triangle with sides 7, 10, and 12 a right triangle?

A. Yes, 7+10 > 12
B. No, 7^2+10^2 is not = 12^2
C. Yes, 7^2+10^2 = 12^2
D. Cannot determine
Your Answer: _____

Question 12

Topic: Statistics: Mean/Median/Mode | Difficulty: ★ Easy

Key Concept:

Mean = sum / count. Median = middle value (sorted). Mode = most frequent. Range = max - min.

Example:

Data: 3,7,4,7,9 => Mean=6. Sorted: 3,4,7,7,9 => Median=7. Mode=7.

Data set: 12, 15, 9, 18, 15, 12, 21

Step 1 — What is the MEAN? (round to nearest whole number)

A. 14
B. 15
C. 12
D. 102
Your Answer: _____

Step 2 — What is the MEDIAN?

A. 12
B. 14
C. 15
D. 18
Your Answer: _____

Step 3 — What is the MODE?

A. 9
B. 21
C. 15 only
D. Both 12 and 15
Your Answer: _____

Question 13

Topic: Probability | Difficulty: ★★ Medium

Key Concept:

P(event) = favorable / total. Range: 0 to 1. P(not A) = 1 - P(A). Independent events: P(A and B) = P(A) x P(B).

Example:

Bag: 3 red, 7 blue. P(red) = 3/10. P(not red) = 7/10.

A bag has 4 red, 6 blue, and 2 green marbles. You pick one marble.

Step 1 — What is P(blue)?

A. 1/2
B. 1/3
C. 2/3
D. 3/4
Your Answer: _____

Step 2 — What is P(NOT green)?

A. 1/6
B. 5/6
C. 2/3
D. 1/3
Your Answer: _____

Step 3 — Pick one, replace, pick again. P(red then red)?

A. 1/9
B. 4/12
C. 1/3
D. 1/6
Your Answer: _____

Question 14

Topic: Number Patterns & Sequences | Difficulty: ★ Easy

Key Concept:

Arithmetic sequence: add a constant difference d. Geometric: multiply by constant ratio r. nth term formulas apply.

Example:

*3, 7, 11, 15 (d=4 arithmetic). 5th term = 3 + 4*4 = 19.*

Analyze the geometric sequence: 2, 6, 18, 54, ... and an arithmetic sequence.

Step 1 — What is the common ratio of 2, 6, 18, 54, ...?

A. 2
B. 3
C. 4
D. 6
Your Answer: _____

Step 2 — What is the 6th term of 2, 6, 18, 54, ...?

A. 162
B. 243
C. 486
D. 324
Your Answer: _____

Step 3 — Arithmetic sequence 5, 8, 11, 14, ... What is the 20th term?

A. 56
B. 61
C. 62
D. 65
Your Answer: _____

Question 15

Topic: Systems of Equations | Difficulty: ★★★ Hard

Key Concept:

Substitution: isolate one variable, plug into other equation. Elimination: add/subtract to cancel a variable. Always check both answers.

Example:

x+y=10 and x-y=2. Add: 2x=12, x=6, y=4. Check both equations.

Solve the system: 3x + 2y = 16 and x + y = 7

Step 1 — From x + y = 7, express x in terms of y.

A. x = 7 + y
B. x = 7 - y
C. x = y - 7
D. x = y/7
Your Answer: _____

Step 2 — Substitute to find y.

A. y = 3
B. y = 4
C. y = 5
D. y = 2
Your Answer: _____

Step 3 — What is x?

A. x = 1
B. x = 2
C. x = 3
D. x = 4
Your Answer: _____

Question 16

Topic: Exponents & Scientific Notation | Difficulty: ★★ Medium

Key Concept:

a^m * a^n = a^(m+n). (a^m)^n = a^(m*n). Large numbers: positive exponent. Small decimals: negative exponent.

Example:

(2^3)^2 = 2^6 = 64. Scientific: 4,200,000 = 4.2 x 10^6.

Work with exponents and scientific notation.

Step 1 — Simplify: 3^4 x 3^2

A. 3^6
B. 3^8
C. 9^6
D. 6^6

Your Answer: _____

Step 2 — Write 0.00047 in scientific notation.

A. 4.7 x 10^4
B. 4.7 x 10^-4
C. 47 x 10^-5
D. 0.47 x 10^-3

Your Answer: _____

Step 3 — Evaluate: (2^2)^3 / 2^3

A. 8
B. 4
C. 16
D. 2

Your Answer: _____

Question 17

Topic: Geometry: Angles & Triangles | Difficulty: ★★ Medium

Key Concept:

Triangle angles sum to 180. Vertical angles are equal. Exterior angle = sum of two remote interior angles.

Example:

Triangle: 50+70+x=180, x=60 degrees.

Solve angle problems in triangles and intersecting lines.

Step 1 — Triangle with angles 45 and 65 degrees. Find the third angle.

A. 60 deg
B. 70 deg
C. 75 deg
D. 80 deg

Your Answer: _____

Step 2 — Two lines intersect; one angle is 130 deg. Find its vertical angle.

A. 50 deg
B. 130 deg
C. 90 deg
D. 180 deg

Your Answer: _____

Step 3 — Exterior angle is 120 deg; two interior angles are equal. Find each equal angle.

A. 30 deg
B. 50 deg
C. 60 deg
D. 80 deg

Your Answer: _____

Question 18

Topic: Data & Graphs (Box Plots) | Difficulty: ★★ Medium

Key Concept:

5-number summary: Min, Q1, Median, Q3, Max. IQR = Q3 - Q1. Outlier if value > Q3 + 1.5*IQR or < Q1 - 1.5*IQR.

Example:

Data: 10,12,15,18,20,22,25. Q1=12, Median=18, Q3=22. IQR=10.

Data set: 5, 8, 12, 15, 18, 22, 30

Step 1 — What is the MEDIAN?

A. 12
B. 15
C. 18
D. 14
Your Answer: _____

Step 2 — What is the IQR?

A. 10
B. 14
C. 17
D. 25
Your Answer: _____

Step 3 — Is 30 an outlier? (Outlier threshold: Q3 + 1.5 x IQR)

A. Yes, exceeds threshold
B. No, within boundary
C. Only if IQR > 14
D. Cannot determine
Your Answer: _____

Question 19

Topic: Transformations | Difficulty: ★★ Medium

Key Concept:

Translation (a,b): (x,y) -> (x+a, y+b). Reflection over x-axis: (x,y) -> (x,-y). Dilation by factor k: multiply coordinates by k.

Example:

Point (3,4) reflected over y-axis -> (-3, 4). Translated 2 right, 3 up -> (-1, 7).

Transform points on a coordinate plane.

Step 1 — Point A(4,-2) is translated 3 left and 5 up. Where is A'?

A. (7, 3)
B. (1, 3)
C. (1, -7)
D. (7, -7)
Your Answer: _____

Step 2 — Point B(-3, 5) is reflected over the x-axis. Where is B'?

A. (3, 5)
B. (-3, -5)
C. (3, -5)
D. (5, -3)
Your Answer: _____

Step 3 — Dilation by scale factor 2 from origin: where does (4, 1) go?

A. (2, 0.5)
B. (8, 2)
C. (6, 2)
D. (4, 2)
Your Answer: _____

Question 20

Topic: Word Problems: Multi-Step | Difficulty: ★★★ Hard

Key Concept:

Identify given information, what is asked, and which operations to use. Work step by step and check units throughout.

Example:

Tom earns $12/hr. Works 8 hrs x 5 days + 4 hrs Saturday = 44 hrs. Weekly pay = 44 x 12 = $528.

A store sells notebooks for $3.50 each and pens for $1.25 each. Sarah buys 4 notebooks and some pens. She pays with a $20 bill and receives $2.25 in change.

Step 1 — How much did Sarah spend in total?

A. $15.00
B. $17.50
C. $17.75
D. $20.00

Your Answer: _____

Step 2 — How much did the 4 notebooks cost?

A. $12.00
B. $14.00
C. $16.00
D. $10.50

Your Answer: _____

Step 3 — How many pens did Sarah buy?

A. 2 pens
B. 3 pens
C. 4 pens
D. 5 pens

Your Answer: _____

ANSWER KEY

Q1 (Ratios & Proportions): Step 1: B | Step 2: C | Step 3: C

Q2 (Fractions & Decimals): Step 1: A | Step 2: B | Step 3: A

Q3 (Percentages): Step 1: B | Step 2: C | Step 3: C

Q4 (Integers & Operations): Step 1: B | Step 2: A | Step 3: A

Q5 (Algebraic Expressions): Step 1: A | Step 2: B | Step 3: A

Q6 (Solving Equations): Step 1: B | Step 2: C | Step 3: C

Q7 (Inequalities): Step 1: B | Step 2: B | Step 3: C

Q8 (Linear Functions & Slope): Step 1: B | Step 2: B | Step 3: B

Q9 (Geometry: Area & Perimeter): Step 1: A | Step 2: B | Step 3: B

Q10 (Volume & Surface Area): Step 1: B | Step 2: B | Step 3: B

Q11 (Pythagorean Theorem): Step 1: B | Step 2: C | Step 3: B

Q12 (Statistics: Mean/Median/Mode): Step 1: A | Step 2: C | Step 3: D

Q13 (Probability): Step 1: A | Step 2: B | Step 3: A

Q14 (Number Patterns & Sequences): Step 1: B | Step 2: C | Step 3: C

Q15 (Systems of Equations): Step 1: B | Step 2: C | Step 3: B

Q16 (Exponents & Scientific Notation): Step 1: A | Step 2: B | Step 3: A

Q17 (Geometry: Angles & Triangles): Step 1: B | Step 2: B | Step 3: C

Q18 (Data & Graphs (Box Plots)): Step 1: B | Step 2: B | Step 3: B

Q19 (Transformations): Step 1: B | Step 2: B | Step 3: B

Q20 (Word Problems: Multi-Step): Step 1: C | Step 2: B | Step 3: B