

Review Worksheet

What is a prime number?

1. List the prime numbers from 2 to 50.

2. List 5 composite numbers.

3. Write the prime factorization of the following numbers. Use a factor tree.

a) 22500

$$2^2 \cdot 3^2 \cdot 5^4$$

b) 23660

$$2^2 \cdot 5 \cdot 7 \cdot 13^2$$

c) 3087

$$3^2 \cdot 7^3$$

4. Write the factors of:

a) 64

$$1, 2, 4, 8, 16, 32, 64$$

b) 70

$$1, 2, 5, 7, 10, 14, 35, 70$$

5. Write the first 10 multiples of:

a) 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

b) 15, 30, 45, 60, 75, 90, 105,

$$120, 135, 150$$

6. Find the GCF and LCM for:

a) 14, 35

$$\text{GCF} = 7$$

$$\text{LCM} = 70$$

b) 18, 32

$$\text{GCF} = 2$$

$$\text{LCM} = 288$$

c) 12, 18, 15

$$\text{GCF} = 3$$

$$\text{LCM} = 180$$

7. Write all perfect squares up to 400.

0, 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121
144, 169, 196, 225, 256, 289, 324, 361, 400

8. Evaluate:

$$\sqrt{121} = 11$$

$$\sqrt{361} = 19$$

$$\sqrt{1} = 1$$

$$\sqrt{\frac{100}{81}} = \frac{10}{9}$$

$$\sqrt{144} = 12$$

$$\sqrt{16900} = 130$$

$$\sqrt{0.0049} = 0.07$$

$$\sqrt{1.96} = 1.3$$

$$\sqrt{169} = 13$$

$$\sqrt{0.01} = 0.1$$

$$\sqrt{\frac{25}{49}} = \frac{5}{7}$$

$$\sqrt{44100} = 210$$

9. Estimate to the nearest tenth.

$$a) \sqrt{5} = 2.2$$

$$b) \sqrt{28} = 5.3$$

$$c) \sqrt{140} = 11.8$$

$$d) \sqrt{380} = 19.5$$

10. Evaluate:

$$a) -5 - 8 = -13$$

$$b) (-28) \div (-7) = 4$$

$$c) (-9 + 5)(-4 - 3) = 28$$

(-4)(-7)

$$d) -10 + (-13) = -23$$

$$e) -5(-4)(-1) = -20$$

$$f) 4(5) \div (-2) = -10$$

$$g) 4 - (-6) = 10$$

$$h) -9 + (-2) - (-5) = -6$$

$$i) -3 - 2[4 - (-1)(-3)] = -5$$

$$j) 14 \div (-2) = -7$$

$$k) 4 - 3(1 - 2) = 7$$

4 - 3(-1)
4 + 3
7

$$l) -2(1 - 4) - 3(4 - 6) = 12$$

-2(-3) - 3(-2)
6 + 6
12

11. Put into lowest terms.

$$a) \frac{135}{10} = \frac{27}{2}$$

$$b) \frac{15}{30} = \frac{1}{2}$$

$$c) \frac{49}{56} = \frac{7}{8}$$

$$d) \frac{240}{600} = \frac{2}{5}$$

12. Change from a mixed fraction into an improper.

$$a) 1\frac{2}{3} = \frac{5}{3}$$

$$b) 4\frac{3}{5} = \frac{23}{5}$$

$$c) 5\frac{1}{2} = \frac{11}{2}$$

$$d) 10\frac{2}{5} = \frac{52}{5}$$

13. Change from improper fraction into a mixed fraction.

$$a) \frac{19}{12} = 1\frac{7}{12}$$

$$b) \frac{23}{5} = 4\frac{3}{5}$$

$$c) \frac{48}{7} = 6\frac{6}{7}$$

$$d) \frac{39}{19} = 2\frac{1}{19}$$

14. Evaluate. Put your answer in simplified form.

$$a) \frac{2}{3} + \frac{1}{2} = \frac{7}{6}$$

$$b) \frac{1}{2} + 3 = \frac{7}{2}$$

$$c) \frac{1}{8} + \frac{5}{6} - \frac{1}{2} = \frac{11}{24}$$

$$d) 3 - \frac{1}{4} = \frac{11}{4}$$

$$e) 1\frac{5}{2} + 3\frac{1}{2} = 7$$

$$f) 5 + 3\frac{1}{2} - 1\frac{1}{3} = \frac{43}{6}$$

$$g) 5 + \frac{1}{2} - \frac{1}{3} = \frac{31}{6}$$

$$h) 3\frac{1}{6} + 1\frac{1}{4} = 4\frac{5}{12} = \frac{53}{12}$$

$$i) \frac{7}{12} - \frac{1}{15} = \frac{31}{60}$$

$$j) \frac{5}{12} - \frac{1}{18} = \frac{13}{36}$$

$$k) 5 - 1\frac{1}{3} = \frac{11}{3}$$

$$l) \frac{6}{7} + 1 = \frac{13}{7}$$

15. Evaluate. Put your answer in simplified form.

$$a) \frac{14}{15} \times \frac{15}{49} = \frac{2}{7}$$

$$b) 3 \times \frac{3}{2} = \frac{9}{2}$$

$$c) \frac{2}{5} \div \frac{4}{10} = \frac{2}{5} \cdot \frac{10}{4} = 1$$

$$d) \frac{2}{3} \times \frac{1}{4} = \frac{1}{6}$$

$$e) 5 \times \frac{1}{2} = \frac{5}{2}$$

$$f) 3 \div \frac{2}{6} = 3 \cdot \frac{6}{2} = 9$$

$$g) \frac{3}{8} \times \frac{10}{15} \times \frac{16}{9} = \frac{4}{9}$$

$$h) \frac{2}{4} \times 7 = \frac{7}{2}$$

$$i) 13 \div \frac{4}{5} \times 2 = 13 \cdot \frac{5}{4} \cdot 2 = \frac{65}{2}$$

$$j) \frac{1}{2} \times \frac{4}{8} \times \frac{16}{8} = \frac{2}{4} = \frac{1}{2}$$

$$k) 3 \div \frac{1}{2} = 6$$

$$l) 3 \div \frac{1}{2} \div \frac{2}{3} = 3 \cdot \frac{2}{1} \cdot \frac{3}{2} = 9$$

$$m) \frac{2}{5} \div 2 = \frac{2}{5} \cdot \frac{1}{2} = \frac{1}{5}$$

$$n) \frac{4}{18} \times \frac{25}{125} \times \frac{10}{16} = \frac{1}{36}$$

16. Simplify.

$$\begin{aligned} a) 2 - \frac{1}{2} \left(1 - \frac{1}{3} \right) &= \\ &= 2 - \frac{1}{2} \left(\frac{3}{3} - \frac{1}{3} \right) \\ &= 2 - \frac{1}{2} \cdot \frac{2}{3} \\ &= 2 - \frac{1}{3} = \frac{6}{3} - \frac{1}{3} = \boxed{\frac{5}{3}} \end{aligned}$$

$$\begin{aligned} b) \left(2 + \frac{1}{2} \right) - 3 \left(4 + \frac{1}{2} \right) &= \\ &= \frac{5}{2} - 3 \cdot \frac{9}{2} \\ &= \frac{5}{2} - \frac{27}{2} \\ &= \frac{-22}{2} = \boxed{-11} \end{aligned}$$

$$\begin{aligned} c) \left(\frac{3}{8} + 2 \right) \div \frac{1}{2} &= \\ \left(\frac{3}{8} + \frac{16}{8} \right) \cdot 2 &= \\ = \frac{19}{8} \cdot 2 &= \\ = \frac{19}{4} &= \boxed{\frac{19}{4}} \end{aligned}$$

$$\begin{aligned} d) 5 - 2 \left(\frac{4}{3} + \frac{1}{2} \div 3 \right) &= \\ = 5 - 2 \left(\frac{4}{3} + \frac{1}{2} \cdot \frac{1}{3} \right) &= \\ = 5 - 2 \left(\frac{4}{3} + \frac{1}{6} \right) &= \\ = 5 - 2 \left(\frac{8}{6} + \frac{1}{6} \right) &= \\ = 5 - 2 \cdot \frac{9}{6} &= \\ = 5 - 3 &= \boxed{2} \end{aligned}$$

17. Solve the factoring equations.

a) $x + 1 = 5$

$x = 4$

b) $2x = -10$

$x = -5$

c) $\frac{1}{2}x = 4$

$x = 8$

d) $x - 3 = -2$

$x = 1$

e) $-3x = -12$

$x = 4$

f) $\frac{-1}{3}x = 5$

$x = -15$

g) $x + 7 = -9$

$x = -16$

h) $-4x = 15$

$x = -\frac{15}{4}$

i) $\frac{-2}{3}x = -4$

$x = 6$

j) $x - 11 = -13$

$x = -2$

k) $-x = -6$

$x = 6$

l) $\frac{3x}{5} = -2$

$x = -\frac{10}{3}$

18. Solve the following equations.

a) $2x - 1 = 3$

$x = 2$

b) $\frac{1}{2}x - 1 = 3$

$(2) \frac{1}{2}x = 4$

$x = 8$

c) $3y + 1 = 5$

$3y = 4$

$y = \frac{4}{3}$

d) $-\frac{1}{3}y + 4 = -5$

$(-3) -\frac{1}{3}y = -9$

$y = 27$

e) $-3y + 5 = -4$

$-3y = -9$

$y = 3$

f) $-3 = 2 - \frac{1}{2}a$

$(-2) -5 = -\frac{1}{2}a$

$a = 10$

19. Solve the following equations.

a) $2(x-1) = 5$

$$2x - 2 = 5$$

$$2x = 7$$

$$x = \frac{7}{2}$$

b) $2(1-2x) = -4$

$$2 - 4x = -4$$

$$-4x = -6$$

$$x = \frac{-6}{-4} = \frac{3}{2}$$

c) $-3(x-1) = 3$

$$-3x + 3 = 3$$

$$-3x = 0$$

$$x = 0$$

d) $-10 = 3 - (1-x)$

$$-10 = 3 - 1 + x$$

$$-10 = 2 + x$$

$$x = -12$$

e) $5 = -(1-x)$

$$5 = -1 + x$$

$$x = 6$$

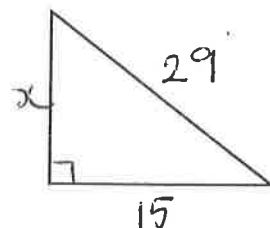
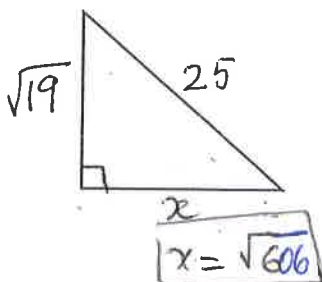
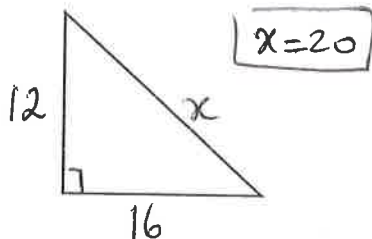
f) $\frac{2}{3}(6-6x) = 4$

$$4 - 4x = 4$$

$$-4x = 0$$

$$x = 0$$

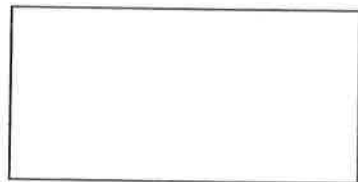
20. Find the missing side.



$$x = \sqrt{616} \approx 24.8 \text{ cm}$$

21. Find the area and the perimeter.

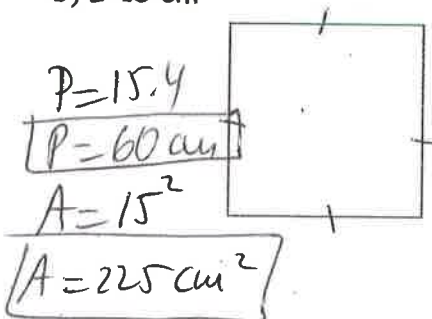
a) $L=12 \text{ cm}$ $W=8 \text{ cm}$



$$P = 12 \cdot 2 + 8 \cdot 2$$

$$P = 40 \text{ cm}$$

b) $L=15 \text{ cm}$



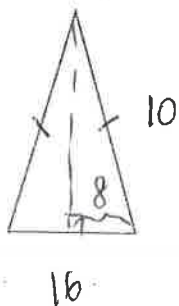
$$P = 15 \cdot 4$$

$$P = 60 \text{ cm}$$

$$A = 15^2$$

$$A = 225 \text{ cm}^2$$

c) base=16 cm side=10 cm

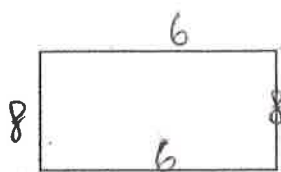


height = 6 (use Pythagorean theorem)

$$P = 10 + 10 + 16 = 36 \text{ cm}$$

$$A = \frac{16 \cdot 6}{2} = 48 \text{ cm}^2$$

d) $P=28$ cm $L=6$ cm $A=?$



$$28 - 12 = 16$$

$$\frac{1}{2} \cdot 16 = 8$$

$$A = 6 \cdot 8 = 48 \text{ cm}^2$$

e) $A=225$ $P=?$



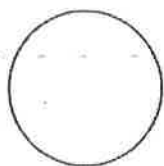
$$L = \sqrt{225}$$

$$L = 15$$

$$P = 15 \cdot 4$$

$$P = 60 \text{ cm}$$

f) Diameter = 16 cm



$$C = 2\pi R$$

$$= 2\pi \cdot 8$$

$$C = 16\pi \text{ cm}$$

$$A = \pi R^2$$

$$A = 64\pi \text{ cm}^2$$

22. When a number is added to twice itself, the result is 45. What is the number?

Let x be the number

$$3x = 45$$

The number is 15.

$$x + 2x = 45$$

$$x = 15$$

23. Eight times a number increased by 10 is -23. Find the number.

$$8x + 10 = -23$$

$$x = -\frac{33}{8}$$

$$8x = -33$$

24. When a number is divided by seven and then decreased by 12, the result is 3 more than the square root of 81. Find the number.

$$\frac{x}{7} - 12 = 3 + \sqrt{81}$$

$$\frac{x}{7} - 12 = 12$$

$$\frac{x}{7} - 12 = 3 + 9$$

$$\frac{x}{7} = 24$$

$$x = 168$$

25. Mental math:

$$10\% \text{ of } 250 = 25$$

$$0.5 \times 12 = 6$$

$$2.3 \times 100 = 230$$

$$40 \times 1.2 = 48$$

$$50 \div 0.1 = 500$$

$$120 \div 100 = 1.2$$

$$0.2 \times 0.02 = 0.004$$

$$45 \div 0.1 = 450$$

$$5\% \text{ of } 120 = 6$$

$$30\% \text{ of } 400 = 120$$

$$0.5 \times 0.5 = 0.25$$

$$20 \times 0.3 = 6$$

26. a) What is 45% of 80?

$$36$$

27. 30 is what percent of 130?

$$25\%$$

28. 80% of what number is 24?

$$30$$

29. Complete the table:

Fraction	Decimal	Percent
$\frac{4}{5}$	0.8	80%
$\frac{1}{8}$	0.125	12.5%
$\frac{1.35}{100} = \frac{135}{10000} = 1\frac{7}{20}$	1.35	135%
$\frac{9}{4}$	2.25	225%
$1\frac{2}{3}$	$1.\bar{6}$	$166.\bar{6}\% = 166\frac{2}{3}\%$

$$x = 192.31$$

b) What is $30\frac{3}{2}\%$ of 400?

$$\frac{63}{200} \times 400 = 126$$

b) 12 is what percent of 96?

$$12.5\%$$

b) 65% of what number is 125?

$$\frac{65}{100} = \frac{125}{x} \quad x = \frac{2500}{13}$$

30. A survey showed that $\frac{1}{4}\%$ of 800 students use inline skates to get to school. $\frac{1}{6}$ of the rest walk to school. The remaining students take the bus. How many students take the bus to school?

$$\frac{1}{4}\% = 0.25\%$$

$$0.0025 \times 800 = 2 \text{ skate}$$

$$800 - 2 = 798$$

$$\frac{1}{6} \cdot 798 = 133 \text{ walk}$$

$$\boxed{665} \text{ take the bus.}$$

31. A sweater costs \$80. It is marked down 20%. Tax is 12%.

a) find the amount of discount \$16.00

b) find the selling price \$64.00

c) find the amount of tax $\frac{12}{100} \cdot 64 = 7.68$

d) find the final amount of money you have to pay for the sweater. \$71.68

e) find the answer to question d in one or two steps.

$$80 \times 0.80 \times 1.12 = 71.68$$