

Show all work neatly. No work = no mark. Circle your answers.

A. Find the value of x.

(a) $3(4^x) = 48$

(e) $5^x = 1$

(b) $\sqrt{x} = 15$

(f) $2^x = \frac{1}{16}$

(c) $2x^3 = -54$

(g) $x^7 \div x^6 \cdot x^2 = 216$

(d) $(3^x)^2 = 81$

(h) $x^{-3} = \frac{1}{125}$

B. Simplify. BEDMAS

(a) $-5 + (-3)(-2)^2$

(b) $(12 + 3) - (2^3 - 3^2)$

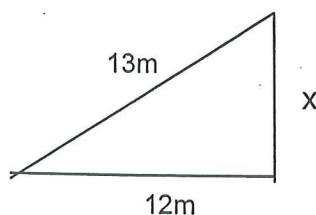
(c) $(5 + -9)^2 \cdot (4 \times 10)^0$

(d) $\frac{3}{4}[-10 + 2(5 - 8)]$

C. For the right triangle below solve for x and calculate the Area (A). Show an equation and answer (don't forget proper units).

X =

A =



D. Simplify.

(a) $3(4x - y) - 5(x - 2y)$

(d) $(2x + 4)(3x - 2)$

(b) $\frac{20x^5y^2z^3}{-4x^2y^2z}$

(e) $\frac{12x^5y^2 - 8x^3y^2 - 10x^2y}{2x^2y}$

(c) $(3x^2 - 5x + 2) - (4x^2 - 6x - 7)$

(f) $2(x - y)(3x + y)$

E. Factor completely (GCF, trinomial, difference of squares)

(a) $4x^3y^2 - 2x^2y^2 + 6x^2y$

(f) $x^2 - 25$

(b) $-7x^5y - xy^4$

(g) $4x^2 - 9y^2$

(c) $x^2 + 8x + 12$

(h) $2x^2 - 8x + 8$

(d) $x^2 - 2x - 15$

(i) $2 - 18y^2$

(e) $x^2 + 2xy - 24y^2$

(j) $3x^3 - 9x^2 - 30x$

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Key /30

A. Find the value of x.

(a) $\frac{3(4^x)}{3} = \frac{48}{3}$
 $4^x = 16$

$x = 2$

(e) $5^x = 1$

$x = 0$

(b) $\sqrt{x} = 15$

$x = 225$

(f) $2^x = \frac{1}{16}$

$x = -4$

(c) $\frac{2x^3}{2} = \frac{-54}{2}$

$x^3 = -27$

$x = -3$

(g) $x^7 \div x^6 \cdot x^2 = 216$

x^{7-6+2}

$x^3 = 216$

$x = 6$

(d) $\sqrt{(3^x)^2} = \sqrt{81}$

$3^x = 9$

$x = 2$

(h) $x^{-3} = \frac{1}{125}$

$x = 5$

B. Evaluate. Write answer in scientific notation.

(a) $3\,000 \cdot 12\,000$

$3 \times 10^3 \times 1.2 \times 10^4$

3.6×10^7

(b) 0.0027×0.0004

$2.7 \times 10^{-3} \times 4 \times 10^{-4}$

10.8×10^{-7}

1.08×10^{-6}

(c) $(5.3 \times 10^{-7}) \cdot (4 \times 10^{-3})$

21.2×10^{-10}

2.12×10^{-9}

(d) $(3.0 \times 10^4) \cdot (8.0 \times 10^5)$

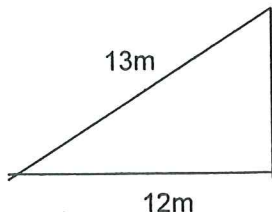
$(6.0 \times 10^2) \cdot (2 \times 10^2)$

$\frac{24 \times 10^9}{12 \times 10^4}$

2×10^5

old Curriculum

C. For each right triangle below solve for x and calculate the Area (A). Show an equation and answer (don't forget proper units).



$a^2 + b^2 = c^2$
 $x^2 + 12^2 = 13^2$
 $x^2 + 144 = 169$
 $-144 \quad -144$
 $x^2 = 25$

$x = 5m$

$A = \frac{bh}{2} = \frac{12(5)}{2} = \frac{60}{2}$

$30m^2$

D. Simplify.

(a) $3(4x - y) - 5(x - 2y)$
 $12x - 3y - 5x + 10y$
 $-5x + 10y$

$7x + 7y$

(b) $\frac{20x^5y^2z^3}{-4x^2y^2z}$

$-5x^3z^2$

(c) $(3x^2 - 5x + 2) - (4x^2 - 6x - 7)$
 $-4x^2 + 6x + 7$

$-x^2 + x + 9$

(d) $(2x + 4)(3x - 2)$
 $6x^2 - 4x + 12x - 8$

$6x^2 + 8x - 8$

(e) $\frac{12x^3y^2 - 8x^3y^2 - 10x^2y}{2x^2y \quad 2x^2y \quad 2x^2y}$

$6x^3y - 4xy - 5$

(f) $2(x - y)(3x + y)$
 $(2x - 2y)(3x + y)$
 $6x^2 + 2xy - 6xy - 2y^2$

$6x^2 - 4xy - 2y^2$

E. Factor completely (use your notes to help) GCF, trino, diff of sq

(a) $4x^3y^2 - 2x^2y^2 + 6x^2y$ GCF

$2x^2y(2xy - y + 3)$

(f) $x^2 - 25$ DIFF

$(x - 5)(x + 5)$

(b) $-7x^5y - xy^4$ GCF

$xy(-7x^4 - y^3)$

(g) $4x^2 - 9y^2$ DIFF

$(2x - 3y)(2x + 3y)$

(c) $x^2 + 8x + 12$ TRINO P=12 S=8

$(x + 2)(x + 6)$

(h) $2x^2 - 8x + 8$ GCF, trino P=4 S=4

$2(x^2 - 4x + 4)$
 $2(x - 2)(x - 2)$

(d) $x^2 - 2x - 15$ TRINO P=-15 S=-2

$(x - 5)(x + 3)$

(i) $2 - 18y^2$ GCF, DIFF

$2(1 - 9y^2)$
 $2(1 - 3y)(1 + 3y)$

(e) $x^2 + 2xy - 24y^2$ trino P=-24 S=2

$(x + 6y)(x - 4y)$

(j) $3x^3 - 9x^2 - 30x$ GCF P=-10 S=-3

$3x(x^2 - 3x - 10)$
 $3x(x - 5)(x + 2)$

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(h) $x^{-3} = \frac{1}{125}$

B. Simplify. BEDMAS

(a) $-5 + (-3)(-2)^2$
 $-5 + (-3)(4)$
 $-5 - 12$
 -17

(b) $(12 + 3) - (2^3 - 3^2)$
 $15 - (8 - 9)$
 $15 - (-1)$
 16

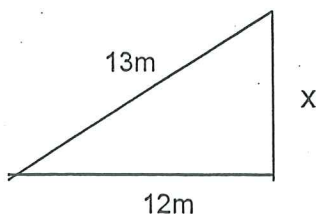
(c) $(5 + -9)^2 \cdot (4 \times 10)^0$
 $(-4)^2 \cdot 1$
 16

(d) $\frac{3}{4}[-10 + 2(5 - 8)]$
 $\frac{3}{4}(-10 + 2(-3))$
 $\frac{3}{4}(-10 - 6)$
 $\frac{3}{4}(-16)$
 -12

C. For the right triangle below solve for x and calculate the Area (A). Show an equation and answer (don't forget proper units).

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A =



D. Simplify.

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