Introduction to Pre-Calculus *Summer Assignment*

There will be an assessment on this material in September.

EVALUATE EACH EXPRESSION

1) $24 \div (18 \div 6) + 2^3 \cdot 4$

2) $\frac{11-8(2)}{1+7\cdot 2}$

3) $[(7-4)^2+3]+15 \div (-1)^3$

4) $\frac{[8(2)-4^2]+7(4)}{-2^2+6}$

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SOLVE EACH EQUATION

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

6) $-\frac{5}{6}k + 3\frac{2}{3} = -\frac{4}{6}$

7) $-\frac{1}{6}(5m-3) = \frac{1}{4}(24m-12)$

8) $\frac{1}{12} + \frac{3}{8}y = \frac{5}{12} + \frac{5}{8}y$

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SIMPLIFY USING EXACT VALUESONLY(NO DECIMALS)

9) $\sqrt{48}$

10) $\sqrt{\frac{4}{9}}$

11) $9x\sqrt{8} - 3\sqrt{2x^2}$

SIMPLIFY EACH EXPRESSION

12) $(\sqrt{8}+\sqrt{15})(\sqrt{6}+\sqrt{18})$

13) $4\sqrt{48}+\sqrt{28}-5\sqrt{45}$

14) $\frac{2+4\sqrt{2}}{3-2\sqrt{5}}$

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REWRITE IN RADICAL FORM AND SIMPLIFY

15) $27^{\frac{1}{3}}$

16) $81^{-\frac{3}{4}}$

17) $16^{\frac{3}{4}}$

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SIMPLIFY USING POSITIVE EXPONENTS ONLY (ASSUME NO VARIABLE EQUALS ZERO)

18) $\frac{X^6}{X^{-3}}$

19) $3z^2(2z^3)^2$

20) $\frac{(x^5y^2)^3}{x^7y^4}$

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SIMPLIFY. STATE ANY RESTRICTIONS ON X.

21) $(3x-2)^2$

22) $\frac{8x}{x-3}-\frac{24}{x-3}$

23) $\frac{3}{x+3}+\frac{6}{x-3}$

24) $\left(\frac{2}{x}-\frac{2}{x+1}\right)\div\left(\frac{4}{x^2-1}\right)$

25) $(x+9)(x^2-7x+2)$

26) $(x-y)(x+y)$

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FACTOR COMPLETELY IF POSSIBLE.

27) $4x^2-25$
28) x^2-5x-6
29) x^2+4
30) $6x^2-x-15$
31) x^3+2x^2-4x-8
32) $3x^2-27$
33) $8x^3+27$
34) $16x^2-81$
35) $4x^2y^2z+10xy^2z-6y^2z$

SOLVE (Leave answers in simplest radical form when necessary)

36) $2x^2+7x-15=0$
37) $x^4+x^2-6=0$
39) $3x^2+6x+2=0$
40) $2x^2+8x=1$

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SIMPLIFY EACH EXPRESSION WITHOUT USING A CALCULATOR.

40) $\log_2 8$ 41) $\log 1000$ 42) $\ln e^5$ 43) $\log_3 \frac{1}{81}$

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SIMPLIFY USING IMAGINARY NUMBERS

44) $\sqrt{-24}$ 45) $(2 + 5i)(2 - 5i)$ 46) $(2 + 5i) - (7 - 3i)$

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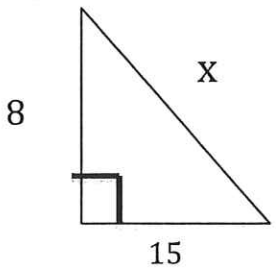
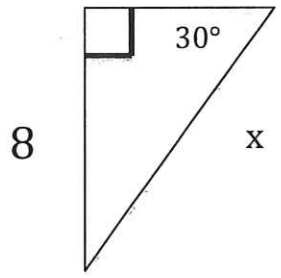
SOLVE FOR THE MISSING SIDE OF THE TRIANGLE

47)



48)



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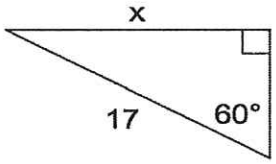

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50) Sketch the graph of $f(x) = x^2$ and $g(x) = (x - 1)^2 + 2$ on the axes. List the vertex, x and y intercepts, and the domain and the range of each function.